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In Memory of
STEPHEN SPAULDING
1907 - 1925
CLASS of 1927
UNIVERSITY OF MICHIGAN

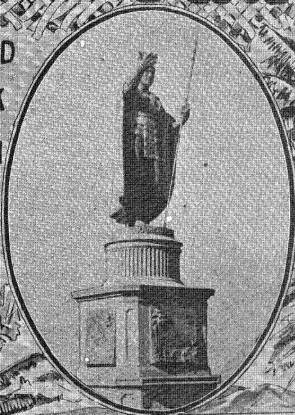
W.H. McNeill 1927

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THE HAWAIIAN ANNUAL

THE
RECOGNIZED
BOOK
OF
INFORMATION
ABOUT
HAWAII



1908

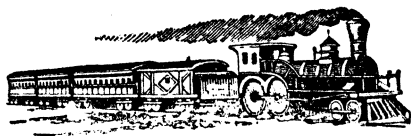


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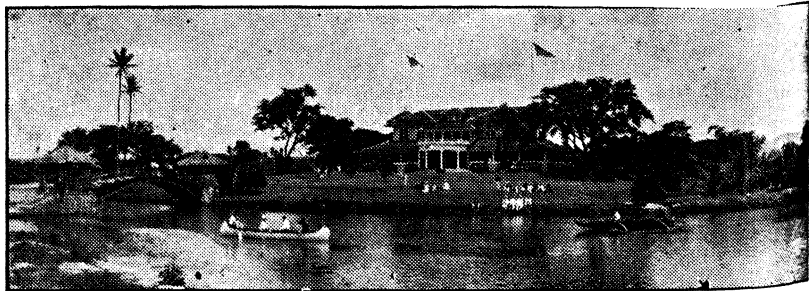
THOS. G. THURM
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HONOLULU, T. H.
THIRTY-FOURTH YEAR

BY MAIL 85 CTS.

OAHU RAILWAY AND LAND COMPANY



THIS COMPANY is now running to Kahuku, 71 miles from Honolulu. The equipment of the road is first-class in every particular. *Excursion Rates* are maintained from Saturday morning till Monday of each week. A delightful ride through varied and unsurpassed Scenery makes excursions of the OAHU RAILWAY one of the most attractive features of the Islands, not only to the Tourists, but residents of Honolulu as well. The opportunity to visit a large Sugar Estate should not be missed by those visiting these Islands, and among others on the line of the Railway is the Ewa Plantation, one of the largest in the Islands, or by the new branch line to Wahiawa, eleven miles from Waipahu, inspect the extensive pineapple industry in that section.



HALEIWA HOTEL

AT WAIALUA is a beautiful new Hotel, of the most modern construction and equipment under the management of St. Clair Bidgood, in which guests will find all possible comfort and entertainment, combined with elegance of furnishing, tropical surroundings and healthful atmosphere. The view from the Hotel embraces Sea, Mountain and Valley in a combination not to be enjoyed elsewhere.

B. F. DILLINGHAM, General Manager.

G. P. DENISON,
Superintendent.

F. C. SMITH,
Gen'l Passenger and Ticket Agent.

HAWAIIAN Almanac and Annual

FOR

1908



THE REFERENCE BOOK OF INFORMATION AND STATISTICS

RELATING TO THE TERRITORY OF HAWAII, OF VALUE TO
MERCHANTS, TOURISTS AND OTHERS



THOS. G. THRUM,
Compiler and Publisher.



Thirty-Fourth Year of Publication



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HONOLULU:

1907

1908

Counting House Calendar

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
JAN.	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25
FEB.	2 9 16 23	3 10 17 24	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	8 15 22 29
MAR.	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28
APR.	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24	4 11 18 25
MAY	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	8 15 22 29	9 16 23 30
JUNE	7 14 21 28	8 15 22 29	9 16 23 30	1 8 15 22 29	2 9 16 23 30	3 10 17 24 27	4 11 18 25
JULY	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24 31	4 11 18 25
AUG.	2 9 16 23 30	3 10 17 24 31	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	8 15 22 29
SEPT.	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24	4 11 18 25	5 12 19 26
OCT.	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24
NOV.	1 8 15 22 29	2 9 16 23 30	3 10 17 24	4 11 18 25	5 12 19 26	6 13 20 27	7 14 21 28
DEC.	6 13 20 27	7 14 21 28	1 8 15 22 29	2 9 16 23 30	3 10 17 24	4 11 18 25	5 12 19 26

THOS. G. THURM

PUBLISHER

Stationer, Bookseller and News Agent

1063 FORT STREET, HONOLULU, T. H.



Major. Thomas M. Spaulding
1-506-1923

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HAWAIIAN ANNUAL CALENDAR FOR 1908.

Second half of the tenth year and first half of the eleventh year since annexation of Hawaii with the United States.

Fifteenth year since the downfall of the Monarchy.

The 130th year since the discovery of the Hawaiian Islands by Captain Cook.

Holidays Observed at the Hawaiian Islands.

*New Year	Jan. 1	*Labor Day (First Mon-	
Chinese New Year	Feb. 1	day)	Sept. 7
*Washington's Birthday	Feb. 22	*Regatta Day (Third Satur-	
Good Friday	April 17	day)	Sept. 19
*Decoration Day	May 30	Recognition of Hawaiian	
*Kamehameha Day	June 11	Independence	Nov. 28
*Birthday Hawn. Republic....	July 4	Thanksgiving Day	Nov. 26
*American Anniversary	July 4	*Christmas	Dec. 25

Those distinguished by an Asterisk have been established by law.

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Church Days.

Epiphany	Jan. 6	Trinity Sunday	June 14
Ash Wednesday	March 4	Corpus Christi	June 18
First Sunday in Lent	March 8	Feast of St. Peter and Paul	June 29
Good Friday	April 17	Assumption Virgin Mary	Aug. 15
Easter Sunday	April 19	All Saints' Day	Nov. 1
Ascension Day	May 28	Advent Sunday	Nov. 29
Whit Sunday	June 7	Christmas	Dec. 25

Eclipses in 1908.

CALCULATED FOR HONOLULU BY DR. W. D. ALEXANDER.

In the year 1908 there will be three Eclipses of the Sun and a Lunar Appulse.

I. A Total Eclipse of the Sun, January 3d, 1908, visible in Honolulu as a partial eclipse. It will be visible throughout the Central Pacific, and total at a few islands of the Marshall, Gilbert and Phoenix groups.

At Honolulu the eclipse will begin at 9 h. 46.6 m., and end at 11 h. 17 m., local mean time. Nearest approach of the centres of the Sun and Moon at 10 h. 27 m., Honolulu mean time. Overlap of their disks about $\frac{3}{10}$ of the Sun's radius.

II. An Annular Eclipse of the Sun, June 28th, 1908, not visible in Honolulu. It will be visible in southern Mexico, and at Tampa, Florida.

III. A Lunar Appulse, December 7th, 1908, not visible at Honolulu. Nearest approach of the Moon to the Earth's shadow about 12th.

IV. A Central Eclipse of the Sun, December 23rd, 1908, not visible at Honolulu.

It will be visible in the southern part of South America and in South Africa.

FIRST QUARTER, 1908.

JANUARY.				FEBRUARY				MARCH			
D.		H. M.		D.		H. M.		D.		H. M.	
3	New Moon...	11.13.4	a.m.	1	New Moon...	10.06.5	p.m.	2	New Moon...	8.26.9	a.m.
10	First Quar...	3.22.9	a.m.	8	First Quar...	5.57.5	p.m.	9	First Quar...	11.12.1	a.m.
18	Full Moon...	3.06.9	a.m.	16	Full Moon...	10.35.4	p.m.	17	Full Moon...	3.58.5	p.m.
26	Last Quar...	4.31.3	a.m.	24	Last Quar...	4.54.3	p.m.	25	Last Quar...	2.01.6	a.m.
								31	New Moon...	6.32.2	p.m.
Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Wed..	6 37 9	5 29 5	1	Sat....	6 37 7	5 50 0	1	SUN..	6 21 1	6 4 2
2	Thurs.	6 38 2	5 30 1	2	SUN..	6 37 4	5 50 6	2	Mon..	6 20 3	6 4 7
3	Fri....	6 38 5	5 30 8	3	Mon..	6 37 0	5 51 3	3	Tues..	6 19 5	6 5 0
4	Sat....	6 38 7	5 31 4	4	Tues..	6 36 6	5 51 9	4	Wed..	6 18 7	6 5 4
5	SUN..	6 38 9	5 32 1	5	Wed..	6 36 2	5 52 5	5	Thurs.	6 17 9	6 5 8
6	Mon..	6 39 1	5 32 8	6	Thurs.	6 35 7	5 53 1	6	Fri....	6 17 0	6 6 2
7	Tues..	6 39 3	5 33 4	7	Fri....	6 35 3	5 53 7	7	Sat....	6 16 2	6 6 6
8	Wed..	6 39 5	5 34 1	8	Sat....	6 34 8	5 54 2	8	SUN..	6 15 4	6 6 9
9	Thurs.	6 39 7	5 34 8	9	SUN..	6 34 3	5 54 8	9	Mon..	6 14 5	6 7 3
10	Fri....	6 39 9	5 35 5	10	Mon..	6 33 8	5 55 3	10	Tues..	6 13 7	6 7 7
11	Sat....	6 40 1	5 36 2	11	Tues..	6 33 3	5 55 8	11	Wed..	6 12 8	6 8 0
12	SUN..	6 40 2	5 36 9	12	Wed..	6 32 8	5 56 3	12	Thurs.	6 11 9	6 8 4
13	Mon..	6 40 3	5 37 5	13	Thurs.	6 32 2	5 56 8	13	Fri....	6 11 0	6 8 7
14	Tues..	6 40 4	5 38 2	14	Fri....	6 31 6	5 57 3	14	Sat....	6 10 1	6 9 0
15	Wed..	6 40 4	5 38 9	15	Sat....	6 31 0	5 57 9	15	SUN..	6 9 2	6 9 3
16	Thurs.	6 40 4	5 39 6	16	SUN..	6 30 4	5 58 4	16	Mon..	6 8 3	6 9 7
17	Fri....	6 40 4	5 40 3	17	Mon..	6 29 8	5 58 9	17	Tues..	6 7 4	6 10 0
18	Sat....	6 40 4	5 40 9	18	Tues..	6 29 1	5 59 4	18	Wed..	6 6 5	6 10 3
19	SUN..	6 40 3	5 41 6	19	Wed..	6 28 5	5 59 9	19	Thurs.	6 5 6	6 10 6
20	Mon..	6 40 3	5 42 3	20	Thurs.	6 27 8	6 0 4	20	Fri....	6 4 7	6 10 9
21	Tues..	6 40 2	5 43 0	21	Fri....	6 27 1	6 0 9	21	Sat....	6 3 8	6 11 2
22	Wed..	6 40 1	5 43 6	22	Sat....	6 26 5	6 1 3	22	SUN..	6 2 9	6 11 6
23	Thurs.	6 39 9	5 44 3	23	SUN..	6 25 8	6 1 7	23	Mon..	6 2 0	6 11 9
24	Fri....	6 39 8	5 45 0	24	Mon..	6 25 1	6 2 1	24	Tues..	6 1 1	6 12 2
25	Sat....	6 39 6	5 45 6	25	Tues..	6 24 4	6 2 5	25	Wed..	6 0 1	6 12 5
26	SUN..	6 39 4	5 46 3	26	Wed..	6 23 7	6 2 9	26	Thurs.	5 59 2	6 12 8
27	Mon..	6 39 2	5 46 9	27	Thurs.	6 23 0	6 3 2	27	Fri....	5 58 3	6 13 1
28	Tues..	6 39 0	5 47 5	28	Fri....	6 22 3	6 3 5	28	Sat....	5 57 3	6 13 4
29	Wed..	6 38 7	5 48 1	29	Sat....	6 21 6	6 3 8	29	SUN..	5 56 4	6 13 7
30	Thurs.	6 38 4	5 48 8					30	Mon..	5 55 5	6 14 0
31	Fri....	6 38 0	5 49 4					31	Tues..	5 54 6	6 14 4

WITH regard to the contemplated discontinuance of the almanac feature of the ANNUAL, as mentioned in last issue, it has been decided to make no change for the present, in deference to the wishes of a number of patrons upon the other islands for its continuance, who maintain that it is an essential convenience if not necessity in the rural district households, one stating that "they need it for the sun to get up by."

SECOND QUARTER, 1908.

APRIL				MAY				JUNE			
D.		H. M.		D.		H. M.		D.		H. M.	
8	First Quar...	6.01.5	a.m.	8	First Quar...	0.53.3	a.m.	6	First Quar...	6.26.1	p.m.
16	Full Moon...	6.25.3	a.m.	15	Full Moon...	6.02.4	p.m.	14	Full Moon...	3.25.2	a.m.
23	Last Quar...	8.36.7	a.m.	22	Last Quar...	1.47.2	p.m.	20	Last Quar...	6.56.1	p.m.
30	New Moon...	5.03.1	a.m.	29	New Moon...	4.44.5	p.m.	28	New Moon...	6.01.5	a.m.

Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...
		H.M.	H.M.			H.M.	H.M.			H.M.	H.M.
1	Wed...	5 53 7	6 14 7	1	Fri...	5 29 5	6 24 9	1	Mon...	5 17 3	6 37 8
2	Thurs.	5 52 8	6 15 0	2	Sat...	5 28 8	6 25 2	2	Tues...	5 17 2	6 38 2
3	Fri...	5 51 9	6 15 3	3	SUN...	5 28 2	6 25 6	3	Wed...	5 17 1	6 38 6
4	Sat...	5 51 0	6 15 6	4	Mon...	5 27 6	6 26 0	4	Thurs.	5 17 1	6 39 0
5	SUN...	5 50 1	6 16 0	5	Tues...	5 27 0	6 26 4	5	Fri...	5 17 0	6 39 4
6	Mon...	5 49 2	6 16 3	6	Wed...	5 26 4	6 26 8	6	Sat...	5 17 0	6 39 8
7	Tues...	5 48 3	6 16 6	7	Thurs.	5 25 8	6 27 2	7	SUN...	5 17 0	6 40 1
8	Wed...	5 47 4	6 16 9	8	Fri...	5 25 3	6 27 6	8	Mon...	5 17 0	6 40 5
9	Thurs.	5 46 5	6 17 2	9	Sat...	5 24 7	6 28 0	9	Tues...	5 16 9	6 40 9
10	Fri...	5 45 6	6 17 5	10	SUN...	5 24 3	6 28 5	10	Wed...	5 16 9	6 41 2
11	Sat...	5 44 8	6 17 8	11	Mon...	5 23 8	6 28 9	11	Thurs.	5 17 0	6 41 5
12	SUN...	5 44 0	6 18 1	12	Tues...	5 23 4	6 29 3	12	Fri...	5 17 1	6 41 9
13	Mon...	5 43 2	6 18 4	13	Wed...	5 22 9	6 29 8	13	Sat...	5 17 2	6 42 2
14	Tues...	5 42 3	6 18 8	14	Thurs.	5 22 4	6 30 2	14	SUN...	5 17 3	6 42 5
15	Wed...	5 41 5	6 19 1	15	Fri...	5 22 0	6 30 6	15	Mon...	5 17 5	6 42 8
16	Thurs.	5 40 7	6 19 4	16	Sat...	5 21 6	6 31 0	16	Tues...	5 17 6	6 43 1
17	Fri...	5 39 9	6 19 8	17	SUN...	5 21 2	6 31 4	17	Wed...	5 17 7	6 43 4
18	Sat...	5 39 0	6 20 1	18	Mon...	5 20 8	6 31 9	18	Thurs.	5 17 9	6 43 6
19	SUN...	5 38 2	6 20 5	19	Tues...	5 20 5	6 32 3	19	Fri...	5 18 0	6 43 9
20	Mon...	5 37 4	6 20 8	20	Wed...	5 20 2	6 32 7	20	Sat...	5 18 2	6 44 1
21	Tues...	5 36 6	6 21 2	21	Thurs.	5 19 8	6 33 1	21	SUN...	5 18 4	6 44 4
22	Wed...	5 35 8	6 21 5	22	Fri...	5 19 5	6 33 6	22	Mon...	5 18 6	6 44 6
23	Thurs.	5 35 0	6 21 9	23	Sat...	5 19 2	6 34 0	23	Tues...	5 18 8	6 44 7
24	Fri...	5 34 3	6 22 3	24	SUN...	5 18 8	6 34 5	24	Wed...	5 19 1	6 44 9
25	Sat...	5 33 6	6 22 6	25	Mon...	5 18 5	6 34 9	25	Thurs.	5 19 4	6 45 1
26	SUN...	5 32 9	6 23 0	26	Tues...	5 18 3	6 35 4	26	Fri...	5 19 6	6 45 2
27	Mon...	5 32 2	6 23 3	27	Wed...	5 18 1	6 35 8	27	Sat...	5 19 9	6 45 4
28	Tues...	5 31 4	6 23 7	28	Thurs.	5 17 9	6 36 2	28	SUN...	5 20 2	6 45 5
29	Wed...	5 30 8	6 24 1	29	Fri...	5 17 7	6 36 6	29	Mon...	5 20 5	6 45 6
30	Thurs.	5 30 1	6 24 5	30	Sat...	5 17 5	6 37 0	30	Tues...	5 20 8	6 45 7
				31	SUN...	5 17 4	6 37 4				

HAWAIIAN tradition relates that Kualii Kunuiakea Kuikeilaikanaokalani, who ruled on Oahu in the sixteenth century was the promulgator of the Niaupio Kalowalo laws, whereby old men and women slept in safety on the highway; assistance inculcated to be rendered honest toilers; food shared with the hungry, and strangers entertained. This beneficent law has been commonly credited to Kamehameha. Kualii died in 1730, aged (it is alleged,) 175 years.

THIRD QUARTER, 1908.

JULY					AUGUST					SEPTEMBER				
D.	H. M.				D.	H. M.				D.	H. M.			
6	First Quar...	9.55.0	a.m.		4	First Quar...	11.10.4	p.m.		3	First Quar...	10.20.8	a.m.	
13	Full Moon...	11.17.9	a.m.		11	Full Moon...	6.28.8	p.m.		10	Full Moon...	9.53.3	a.m.	
20	Last Quar...	1.31.7	a.m.		18	Last Quar...	10.55.5	a.m.		17	Last Quar...	0.03.4	p.m.	
27	New Moon...	8.46.8	p.m.		26	New Moon...	0.28.9	p.m.		25	New Moon...	4.29.4	a.m.	
Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo.	Day of Wk.	Sun Rises..	Sun Sets...		Day of Mo.	Day of Wk.	Sun Rises...	Sun Sets...	
		H.M.	H.M.				H.M.	H.M.				H.M.	H.M.	
1	Wed..	5 21 16	45 8		1	Sat...	5 32 9	6 39 0		1	Tues..	5 43 2	6 16 6	
2	Thurs.	5 21 46	45 8		2	SUN..	5 33 0	6 38 5		2	Wed..	5 43 4	6 15 7	
3	Fri...	5 21 7	6 45 9		3	Mon..	5 33 7	6 38 0		3	Thurs.	5 43 7	6 14 8	
4	Sat...	5 22 16	45 8		4	Tues.	5 34 1	6 37 4		4	Fri...	5 43 9	6 13 9	
5	SUN..	5 22 4	6 45 8		5	Wed..	5 34 4	6 36 9		5	Sat...	5 44 2	6 13 0	
6	Mon..	5 22 8	6 45 8		6	Thurs.	5 34 8	6 36 3		6	SUN..	5 44 5	6 12 0	
7	Tues..	5 23 1	6 45 8		7	Fri...	5 35 2	6 35 7		7	Mon..	5 44 7	6 11 1	
8	Wed..	5 23 5	6 45 8		8	Sat...	5 35 6	6 35 1		8	Tues..	5 45 0	6 10 2	
9	Thurs.	5 23 8	6 45 7		9	SUN..	5 35 9	6 34 5		9	Wed..	5 45 3	6 9 2	
10	Fri...	5 24 2	6 45 6		10	Mon..	5 36 3	6 33 8		10	Thurs.	5 45 5	6 8 3	
11	Sat...	5 24 5	6 45 5		11	Tues..	5 36 6	6 33 2		11	Fri...	5 45 8	6 7 3	
12	SUN..	5 24 9	6 45 4		12	Wed..	5 37 0	6 32 5		12	Sat...	5 46 0	6 6 4	
13	Mon..	5 25 4	6 45 3		13	Thurs.	5 37 3	6 31 8		13	SUN..	5 46 3	6 5 4	
14	Tues..	5 25 8	6 45 1		14	Fri...	5 37 7	6 31 1		14	Mon..	5 46 5	6 4 4	
15	Wed..	5 26 2	6 44 9		15	Sat...	5 38 0	6 30 4		15	Tues..	5 46 8	6 3 5	
16	Thurs.	5 26 6	6 44 7		16	SUN..	5 38 3	6 29 7		16	Wed..	5 47 0	6 2 5	
17	Fri...	5 27 0	6 44 5		17	Mon..	5 38 7	6 29 0		17	Thurs.	5 47 3	6 1 6	
18	Sat...	5 27 4	6 44 3		18	Tues..	5 39 0	6 28 2		18	Fri...	5 47 5	6 0 6	
19	SUN..	5 27 8	6 44 1		19	Wed..	5 39 3	6 27 5		19	Sat...	5 47 8	5 59 7	
20	Mon..	5 28 2	6 43 8		20	Thurs.	5 39 6	6 26 7		20	SUN..	5 48 0	5 58 7	
21	Tues..	5 28 6	6 43 5		21	Fri...	5 39 9	6 25 9		21	Mon..	5 48 3	5 57 8	
22	Wed..	5 29 0	6 43 2		22	Sat...	5 40 3	6 25 1		22	Tues..	5 48 5	5 56 8	
23	Thurs.	5 29 4	6 42 8		23	SUN..	5 40 6	6 24 3		23	Wed..	5 48 8	5 55 9	
24	Fri...	5 29 8	6 42 5		24	Mon..	5 40 9	6 23 5		24	Thurs.	5 49 0	5 54 9	
25	Sat...	5 30 2	6 42 1		25	Tues..	5 41 2	6 22 6		25	Fri...	5 49 3	5 53 9	
26	SUN..	5 30 6	6 41 7		26	Wed..	5 41 4	6 21 8		26	Sat...	5 49 6	5 53 0	
27	Mon..	5 31 0	6 41 3		27	Thurs.	5 41 7	6 20 9		27	SUN..	5 49 8	5 52 1	
28	Tues..	5 31 4	6 40 9		28	Fri...	5 42 0	6 20 1		28	Mon..	5 50 1	5 51 1	
29	Wed..	5 31 8	6 40 5		29	Sat...	5 42 3	6 19 2		29	Tues..	5 50 4	5 50 2	
30	Thurs.	5 32 2	6 40 0		30	SUN..	5 42 6	6 18 3		30	Wed..	5 50 7	5 49 2	
31	Fri...	5 32 5	6 39 5		31	Mon..	5 42 9	6 17 4						

THE introduction of deer into these islands appears to date back to 1856 by the receipt that year, by Capt. Jas. Makee, of a reindeer from the Ochotsk by the "Vernon." The following year a 200-pound buck was brought from Oregon by a Capt. Collins in the brig "Advance." In 1867 the Hawaiian Consul at Japan sent, as a present to the king, a flock of eight by the ship "Loch na Garr," which, after a short stay in Honolulu, were sent to Molokai.

FOURTH QUARTER, 1908.

OCTOBER					NOVEMBER					DECEMBER				
D.		H.M.			D.		H.M.			D.		H.M.		
2	First Quar...	7.43.7	p.m.		1	First Quar...	3.46.3	a.m.		7	Full Moon...	11.14.1	a.m.	
9	Full Moon...	10.33.4	a.m.		7	Full Moon...	9.28.0	p.m.		15	Last Quar...	10.42.5	a.m.	
16	Last Quar...	5.05.4	p.m.		15	Last Quar...	1.11.1	p.m.		23	New Moon...	1.19.7	a.m.	
24	New Moon...	8.16.6	p.m.		23	New Moon...	11.23.1	a.m.		29	First Quar...	7.09.9	p.m.	
					30	First Quar...	11.14.4	a.m.						
Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.		Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.		Day of Mo.	Day of Wk.	Sun Rises.	Sun Sets.	
		H.M.	H.M.				H.M.	H.M.				H.M.	H.M.	
1	Thurs.	5 51 0	5 48 3		1	SUN...	6 2 8	5 24 4		1	Tues.	6 20 9	5 17 2	
2	Fri...	5 51 3	5 47 4		2	Mon...	6 3 3	5 23 9		2	Wed...	6 21 5	5 17 3	
3	Sat...	5 51 6	5 46 5		3	Tues...	6 3 8	5 23 3		3	Thurs.	6 22 2	5 17 4	
4	SUN...	5 51 8	5 45 6		4	Wed...	6 4 3	5 22 8		4	Fri...	6 22 8	5 17 5	
5	Mon...	5 52 1	5 44 7		5	Thurs.	6 4 9	5 22 4		5	Sat...	6 23 5	5 17 7	
6	Tues.	5 52 4	5 43 8		6	Fri...	6 5 4	5 21 9		6	SUN...	6 24 2	5 17 9	
7	Wed...	5 52 7	5 42 9		7	Sat...	6 6 0	5 21 4		7	Mon...	6 24 8	5 18 1	
8	Thurs.	5 53 1	5 42 0		8	SUN...	6 6 5	5 21 0		8	Tues...	6 25 4	5 18 4	
9	Fri...	5 53 4	5 41 1		9	Mon...	6 7 1	5 20 7		9	Wed...	6 26 0	5 18 7	
10	Sat...	5 53 8	5 40 2		10	Tues...	6 7 6	5 20 2		10	Thurs.	6 26 6	5 19 0	
11	SUN...	5 54 1	5 39 4		11	Wed...	6 8 2	5 19 9		11	Fri...	6 27 3	5 19 3	
12	Mon...	5 54 5	5 38 6		12	Thurs.	6 8 9	5 19 5		12	Sat...	6 27 9	5 19 6	
13	Tues.	5 54 8	5 37 7		13	Fri...	6 9 5	5 19 2		13	SUN...	6 28 5	5 19 9	
14	Wed...	5 55 1	5 36 9		14	Sat...	6 10 1	5 18 9		14	Mon...	6 29 1	5 20 3	
15	Thurs.	5 55 5	5 36 1		15	SUN...	6 10 7	5 18 6		15	Tues...	6 29 7	5 20 6	
16	Fri...	5 55 8	5 35 3		16	Mon...	6 11 3	5 18 3		16	Wed...	6 30 3	5 21 0	
17	Sat...	5 56 2	5 34 5		17	Tues...	6 11 9	5 18 0		17	Thurs.	6 30 8	5 21 5	
18	SUN...	5 56 6	5 33 7		18	Wed...	6 12 5	5 17 8		18	Fri...	6 31 4	5 21 9	
19	Mon...	5 56 9	5 32 9		19	Thurs.	6 13 1	5 17 6		19	Sat...	6 31 9	5 22 3	
20	Tues.	5 57 3	5 32 2		20	Fri...	6 13 7	5 17 4		20	SUN...	6 32 5	5 22 8	
21	Wed...	5 57 7	5 31 4		21	Sat...	6 14 3	5 17 2		21	Mon...	6 33 0	5 23 3	
22	Thurs.	5 58 2	5 30 7		22	SUN...	6 15 0	5 17 1		22	Tues...	6 33 5	5 23 8	
23	Fri...	5 58 6	5 30 0		23	Mon...	6 15 7	5 17 1		23	Wed...	6 34 0	5 24 3	
24	Sat...	5 59 1	5 29 3		24	Tues...	6 16 3	5 17 0		24	Thurs.	6 34 5	5 24 8	
25	SUN...	5 59 5	5 28 7		25	Wed...	6 17 0	5 17 0		25	Fri...	6 35 0	5 25 3	
26	Mon...	6 0 0	5 28 0		26	Thurs.	6 17 6	5 17 0		26	Sat...	6 35 5	5 25 9	
27	Tues...	6 0 4	5 27 4		27	Fri...	6 18 2	5 17 0		27	SUN...	6 35 9	5 26 5	
28	Wed...	6 0 9	5 26 7		28	Sat...	6 18 9	5 17 0		28	Mon...	6 36 3	5 27 0	
29	Thurs.	6 1 4	5 26 1		29	SUN...	6 19 6	5 17 1		29	Tues...	6 36 6	5 27 6	
30	Fri...	6 1 8	5 25 5		30	Mon...	6 20 2	5 17 1		30	Wed...	6 37 0	5 28 2	
31	Sat...	6 2 3	5 24 9							31	Thurs.	6 37 3	5 28 8	

PHEASANTS were first introduced here from China in 1865, which came to Captain Makee and were sent to his Ulupalakua Ranch, Maui; they consisted of one cock and three hens, and were forwarded by Dr. Wm. Hillebrand. In 1869 another assorted lot of eight were received, among which were some of the golden variety, and came from Japan all in fine order. Other birds sent hither in 1865 were: Java sparrows; finches or linnets; red-bills; bamboo fowls; ring-necked doves, and seven unknown of beautiful plumage.

INTER-ISLAND DISTANCES BY SEA IN SEA MILES.

AROUND OAHU FROM HONOLULU—ESPLANADE WHARF TO

	Miles.		Miles.
Bell Buoy	1¼	Pearl River Bar.....	6
Diamond Head	5	Barber's Point	15
Koko Head	12	Waianae Anchorage	26
Makapuu Point	16	Kaena Point, N. W. of Oahu....	36
Mokapu	27	Waialua Anchorage	46
Kahuku North Point.....	48	Kahuku N. Pt., Oahu, via Kaena. 58	

HONOLULU TO

Lae o ka Laau, S. W. Pt. Molokai	35	Kawaihae, Hawaii.....	144
Kalaupapa, Leper Settlement....	52	Kealakekua, " (direct)	157
West Point of Lanai.....	50	" " (via Kawaihae).....	186
Lahaina, Maui.....	72	S. W. Pt. Hawaii "	233
Kahului, "	90	Punaluu, "	250
Hana, "	128	Hilo, " (direct).....	192
Maalaea, "	86	" " (windward).....	206
Makena, "	96	" " (via Kawaihae).....	230
Mahukona, Hawaii	134		

HONOLULU TO

Nawiliwili, Kauai	98	Hanalei, Kauai	125
Koloa, "	102	Niihau	144
Waimea, "	120		

LAHAINA, MAUI, TO

Kaluaaha, Molokai	17	Maalaea, Maui	12
Lanai	9	Makena, Maui	18

KAWAIIHAE, HAWAII, TO

Mahukona, Hawaii	10	Hilo, Hawaii	85
Waipio, Hawaii	37	Lae o ka Mano, Hawaii.....	20
Honokaa, Hawaii	45	Kailua, Hawaii	34
Laupahoehoe, Hawaii	62	Kealakekua, Hawaii	44

HILO, HAWAII, TO

East Point of Hawaii.....	20	Punaluu, Hawaii	70
Keauhou, Kau, Hawaii.....	50	Kaualuu, Hawaii	80
North Point of Hawaii.....	62	South Point of Hawaii.....	85

WIDTH OF CHANNELS.

Oahu and Molokai.....	23	Maui and Lanai.....	7
Diamond Head to S. W. Point of Molokai	30	Maui and Kahoolawe.....	6
Molokai and Lanai.....	7	Hawaii and Maui.....	26
Molokai and Maui.....	8	Kauai and Oahu.....	63
		Niihau and Kauai.....	15

OCEAN DISTANCES.

HONOLULU TO

San Francisco	2100	Auckland	3810
San Diego	2260	Sydney	4410
Portland, Or.	2360	Hongkong	4920
Brito, Nicaragua	4200	Yokohama	3400
Panama	4720	Guam	3300
Tahiti	2440	Manila, via N. E. Cape.....	4890
Samoa	2290	Victoria, B. C.	2460
Fiji	2700	Midway Islands	1200

OVERLAND DISTANCES.

Revised for the Annual in accordance with latest Government Survey measurements.
The outer column of figures indicates the distance between points

ISLAND OF OAHU.

HONOLULU POST-OFFICE TO

	Miles.		Miles.	Inter.
Bishop's corner (Waikiki).....	3.2	Kahana	26.4	4.5
Waikiki Villa	3.6	Punaluu	28.4	2.0
Race Course	4.5	Hauula	31.4	3.0
Diamond Head	5.9	Laie	34.4	3.0
Kaalawai	6.0	Kahuku Mill	37.2	2.8
	Miles. Inter.	Kahuku Ranch	40.0	2.8
Thomas Square	1.0			
Pawaa corners	2.0	Moanalua	3.4	
Kamoiilili	3.3	Kalauao	7.4	4.0
Telegraph Hill	5.0	Ewa Church	10.2	2.8
Waialae	6.2	Kipapa	13.6	3.4
Niu	8.8	Kaukonahua	20.0	6.4
Koko Head	11.8	Leilehua	20.0	
Makapuu	14.8	Waialua	28.0	8.0
Waimanalo	20.8	Waimea	32.4	4.4
Waimanalo, via Pali.....	12.0	Kahuku Ranch	39.4	7.0
		Ewa Church	10.2	
Nuuanu Bridge	1.1	Waipio (Brown's)	11.2	1.0
Mausoleum	1.5	Hoaeae (Robinson's)	13.5	2.3
Electric Reservoir	2.7	Barber's Point, L. H.	21.5	8.0
Luakaha	4.3	Nanakuli	23.5	2.0
*Pali	6.2	Waianae Plantation	29.9	6.4
Kaneohe (new road).....	11.9	Kahanahaiki	36.9	7.0
Waiahole	18.9	Kaena Point	42.0	5.1
Kualoa	21.9	Waialua to Kaena Pt....	12.0	

OAHU RAILWAY: DISTANCES FROM HONOLULU DEPOT TO

	Miles.		Miles.
Moanalua	2.76	Waipio	13.58
Puuloa	6.23	Waikele	14.57
Halawa	8.14	Hoaeae	15.23
Aiea	9.37	Ewa Plantation Mill	18.25
Kalauao	10.20	Waianae Station	33.30
Waiau	10.93	Kaena Point	44.50
Pearl City	11.76	Waialua Station	55.80
Waiawa	12.52	Kahuku Plantation	69.50
Wahiawa Station	25.20	Punaluu	80.50

ISLAND OF KAUAI.

NAWILIWILI TO

	Miles. Inter.			Miles. Inter.	
Koloa	11.0		Wailua River	7.7	4.4
Lawai	13.8	2.8	Kealia	11.9	4.2
Hanapepe	20.0	6.2	Anahola	15.7	3.8
Waimea	27.1	7.1	Kilauea	23.6	7.9
Waiawa	31.5	4.4	Kalihiwai	26.6	3.0
Nuololo	44.8	13.3	Hanalei	31.8	5.2
			Wainiha	34.8	3.0
Hanamaulu	3.3		Nuololo (no road)	47.0	12.2

* Pali distance is by the old Road, new measurements are not of record.

ISLAND OF MAUI.

KAHULUI TO

	Miles.	Inter.		Miles.	Inter.
Spreckelsville	3.5		Paia	5.5	
Paia	5.5	2.0	Makawao Court House..	10.5	5.0
Hamakuapoko Mill	8.6	3.1	Olinda	16.7	6.2
Haiku	10.2	1.6	Haleakala, edge Crater..	22.5	5.8
Halehaku	16.0	5.8	Haleakala Summit	24.7	2.2
Huelo	19.5	3.5			
Keanae	27.2	7.7	Maalaea	9.9	
Nahiku	32.7	5.5	End of Mountain Road..	15.4	5.5
Ulaino	36.3	3.6	Olowalu	19.6	4.2
Hana	42.3	6.0	Lahaina Court House....	25.5	5.9
Hamoia	45.3	3.0			
Wailua	48.9	3.6	Waiehu	3.3	
Kipahulu Mill	52.2	3.3	Waihee	4.8	1.5
Mokulau	56.6	4.4	Kahakuloa	10.1	5.3
Nuu	62.1	5.5	Honokohau	14.5	4.4
			Honolua	17.4	2.9
Wailuku	3.1		Napili	20.0	2.5
Waikapu	5.5	2.4	Honokawai	23.8	3.8
Maalaea	9.9	4.4	Lahaina Court House....	29.3	5.5
Kalepolepo	14.6	4.7			
Mana	22.3	7.7	MAKENA TO		
Ulupalakua	25.6	3.3	Ulupalakua	3.3	
Kanaio	28.9	3.3	Kamaole	7.1	3.8
Pico's	35.5	6.6	Waiakoa	12.1	5.0
Nuu	41.0	5.5	Foot of Puu Pane.....	15.8	3.7
			Makawao Court House..	21.8	6.0

ISLAND OF HAWAII.

WAIMEA COURT HOUSE TO

	Miles.	Inter.		Miles.	Inter.
Hamakua boundary	4.5		Hilo, via Humuula St'n..	54.0	25.0
Kukuihaele Mill	11.0	6.5	Keamuku Sheep St'n....	14.0	
Mana	7.7		Napuu	22.0	8.0
Hanaipoe	15.0	7.3	Keawewai	8.0	
Keanakolu	24.0	9.0	Waika	11.0	3.0
Puakala	34.0	10.0	Kahuwa	13.0	2.0
Laumaia	36.5	2.5	Puuhue	17.0	4.0
Auwaiakewa	12.5		Kohala Court House . . .	22.0	5.0
Humuulu Sheep Station..	29.0	16.5	Mahukona	22.0	
Via Laumaia	47.5		Puako	12.0	

NORTH KOHALA.—FOREIGN CHURCH, KOHALA, TO

	Miles.		Miles.
Edge of Pololu Gulch.....	4.09	Union Mill	2.25
Niulii Mill	2.80	Union Mill R. R. Station.....	3.25
Halawa Mill	1.65	Honomakau	2.55
Hapuu Landing	2.15	Hind's Hawaii	3.25
Kohala Mill . . . . .	.59	Hawi R. R. Station.....	4.25
Kohala Mill Landing.....	1.50	Honoipu	7.25
Native Church	1.00	Mahukona	10.50
		Puuhue Ranch	7.25

NORTH KOHALA.—ON MAIN ROAD, MAHUKONA TO

	Miles.	Inter.		Miles.	Inter.
Hind's Mill	7.0		Wight's Corner	11.5	1.1
Union Mill Corner.....	8.0	1.0	Niulii Corner	12.8	1.3
Court House	9.2	1.2	Pololu Edge of Gulch....	14.5	1.7
Bond's Corner	9.7	0.5	Puu Hue	5.0	
Kohala Mill Corner.....	10.4	0.7			

SOUTH KOHALA.—KAWAIHAE TO

	Miles.	Inter.		Miles.
Puu Ainako	4.4		Mana, Parker's	19.5
Puuiki, Spencer's	7.7	3.3	Keawewai	6.0
Waiaka, Catholic Church.	9.5	1.8	Puuhue Ranch	10.0
Puuopelu, Parker's	10.8	1.3	Kohala Court House.....	15.0
Waimea Court House.....	11.8	1.0	Mahukona	11.0
Waimea Church	12.2	0.4	Napuu	20.0
Kukuihaele Church	22.1	9.9	Puako	5.0

KONA. KEALAKEKUA TO

Keauhou	6.0		Kawaihae	42.0	4.6
Holualoa	9.6	3.6	Honaunau	4.0	
Kailua	12.0	2.4	Hookena	7.7	3.7
Kaloko	16.0	4.0	Olelomoana	15.2	7.5
Makalawena	19.6	3.6	Hoopulua	21.6	6.4
Kiholo	27.6	8.0	Boundary of Kau.....	24.8	3.2
Ke Au a Lono bound'ry.	31.6	4.0	Flow of '87.....	32.0	7.2
Puako	37.4	5.8	Kahuku Ranch	36.5	4.5

KAU.—VOLCANO HOUSE TO

Half-way House	13.0		Honuapo	32.6	5.0
Kapapala	18.0	5.0	Naalehu	35.6	3.0
Pahala	23.0	5.0	Waiohinu	37.1	1.5
Punaluu	27.6	4.6	Kahuku Ranch	43.1	6.0

PUNA.—HILO COURT HOUSE TO

(By new road.)

	Miles.		Miles.
Keaau, Forks of Road.....	9.0	Kaimu	32.0
Pahoa	20.0	Kalapana	33.0
Pohoiki (Rycroft's)	28.0	Keauhou	50.0
Kapoho (Lyman's)	32.0	Panau	40.0
Opihikao	31.0	Volcano House via Panau....	56.0
Kamaili	26.0	Sand Hills, Naawale, old road...	18.5
Kamaili Beach	29.0	Kapoho, old road	22.0

TO VOLCANO.—HILO TO

Shipman's	1.7	Mountain View	16.3
Edge of Woods	4.1	Mason's	17.5
Cocoanut Grove	8.0	Hitchcock's	23.5
Branch Road to Puna.....	9.0	Cattle Pen	24.7
Furneaux's	13.2	Volcano House	31.0

THROUGH HILO DISTRICT TO

Honolii Bridge	2.5	Honohina Church	17.8
Papaikou Office	4.7	Waikaumalo Bridge	18.8
Onomea Church	6.9	Pohakupuka Bridge	21.0
Kaupakuea Cross Road.....	10.7	Maulua Gulch	22.0
Kolekole Bridge	14.3	Kaiwilahilahi Bridge	24.0
Hakulau, east edge gulch....	15.0	Lydgate's House	26.1
Umauma Bridge	16.0	Laupahoehoe Church	26.7

THROUGH HAMAKUA.—LAUPAHOEHOE CHURCH TO

	Miles.		Miles.
Bottom Kawalii Gulch.....	2.0	Kuaikalua Gulch	22.0
Ookala, Manager's House.....	4.0	Kapulena Church	23.9
Kealakaha Gulch	6.0	Waipanihua	24.3
Kukaiau Gulch	8.0	Stream at Kukuihaele.....	26.0
Horner's	8.5	Edge Waipio	26.5
Catholic Church, Kainehe.....	9.0	Bottom Waipio	27.0
Notley's, Paauiio	10.5	Waimanu (approximate)	32.5
Kaumoalii Bridge	12.5	Kukuihaele to Waimea (approximate)	10.5
Bottom Kalopa Gulch.....	14.0	Gov't. Road to Hamakua Mill....	1.5
Wm. Horner's, Paauhau.....	15.2	Gov't. Road to Paauhau Mill....	1.0
Paauhau Church	16.3	Gov't. Road to Pacific Sugar Mill, Kukuihaele	0.7
Holmes' Store, Honokaa.....	18.0		
Honokaia Church	20.5		

ISLAND OF MOLOKAI.

KAUNAKAKAI TO

Meyer's, Kalae	5.0	Pukoo	15.0
Kalaupapa	9.0	Halawa	25.0
Kamalo	9.0	Ka Lae o ka Laau.....	19.0
Kaluahaha	13.5		

TABLE OF ELEVATIONS OF PRINCIPAL LOCALITIES THROUGHOUT THE ISLANDS.

(From Government Survey Records; Measurements from mean Sea Level.)

OAHU PEAKS.

	Feet.		Feet.
Kaala, Waianae Range.....	4030	Telegraph Hill or Kaimuki.....	291
Palikea, Waianae Range.....	3111	Koko Head, higher crater.....	1205
Konahuanui Peak, S. of Pali....	3105	Koko Head, lower crater.....	644
Lanihuli Peak, N. of Pali.....	2781	Makapuu, east point of island...	665
Tantalus or Puu Ohia.....	2013	Mokapu, crater off Kaneohe....	681
Awawaloa (Olympus), Manoa.....	2447	Olomana, sharp peak, Kailua....	1645
Round Top or Ualakaa.....	1049	Maelieli, sharp peak, Heeia....	715
Punchbowl Hill or Puowaina....	498	Ohulehule, sharp peak, Hakipuu.	2263
Diamond Head or Leahi.....	761	Koolau Range, above Wahiawa.	2381

LOCALITIES NEAR HONOLULU.

Nuuanu Road, cor. School St...	40	Nuuanu Road, Queen Emma's...	358
" " second bridge....	77	" " cor. above Elec-	
" " cor. Judd St....	137	tric Light Works.....	429
" " Cemetery gate... 162		Nuuanu Road, large bridge....	735
" " Mau's'l'm gate... 206		" " Luakaha gate....	848
" " Schaefer's gate.. 238		" " Pali, old station.	1214

MOLOKAI ETC.

Kamakou Peak	4958	Kaolewa Pali, o'v'kng. Settlmnt.	2100
Oloku Peak	4600	Meyer's, Kalae	1485
Kaunuohua	4535	Mauna Loa, near Kaunakakai...	1382
Kalapamoa	4004	Kualapuu Hill	1018
Puu Kolekole	3951	Kahoolawe (Moaula Hill).....	1472
Kaulahuki	3749	Molokini	160
Kaapahu Station	3563	Lanai	3400

HAWAII.

	Feet.		Feet.
Mauna Kea	13,825	Hiilawe Falls	1700
Mauna Loa	13,675	Parker's, Mana	3505
Hualalai	8275	Honokaa Store	1100
Kohala Mountains	5489	Kaluamakani, Hamakua	7584
Kilauea Vol. House, by leveling	3971	Lower edge forest, Hamakua	1700
Kulani, near Kilauea	5574	Lower edge forest, Hilo	1200
Kalaiheha	6660	Laupahoehoe Pali	385
Aahuwela, near Laumaia	7747	Kauku Hill	1964
Hitchcock's, Puakala	6325	Puu Alala	762
Ahumo'a	7034	Halai Hill	347
Waimea Court House	2669	Puu o Nale, Kohala	1797
Waipio Pali, in Mountain	3000	B. D. Bond's, Kohala	521
Waipio Pali, on S (Road)	900	Episcopal Church, Kainaliu	1578
Waipio Pali, on N. side	1394	Puu Enuhe, Kau	2327
Waimanu, at sea	1600	Puu Hoomaha, Kau	6636
Waimanu, in mountain	4000	Puu ka Pele, Kau	5768
Waiau Lake, Mauna Kea	13,041	Pohaku Hanalei, Kau	12,310
Poliahu, Mauna Kea	13,646	Kapoho Hill, Puna	432
Kalaieha, N. Hilo	6738	Kaliu Hill, Puna	1065
Pohaku, Hanalei, Humuula	7343	Olai Trig. Station	622

MAUI.

Haleakala (Red Hill)	10,032	Puu Kapuai, Hamakua	1150
Mt. Kukui, West Maui	5790	Puu o Umi, Haiku	620
Piiholo, Makawao	2256	Puu Pane, Kula	2568
Puu Olai (Miller's Hill)	355	Lahainaluna Seminary	600
Puu Io, near Ulupalakua	2841	Kauiki, Hana	392
Ulupalakua, about	1800	"Sunnyside" Makawao	930
Olinda, Makawao	4043	Paia Foreign Church, about	850
Puu Pane, Kahikinui	3988	Eka, crater in Waihee	4500
Puu Niania, Makawao	6850	Keakaamanu, Hana	1250

KAUAI.

Haupt	2030	Mt. Waialeale, central peak	5250
Kilohana, about	1100	Namolokama	4200

NOTE—A large number of approximate elevations of stations where rain records are kept may be found in the Rain Tables in this Annual.

Area, Elevation and Population of the Hawaiian Islands.

(As revised by latest Government Survey Records.)

Islands.	Area in Statute Square Miles.	Acres.	Height in Feet.	Population in 1900.
Hawaii	4,015	2,570,000	13,825	46,843
Maui	728	466,000	10,032	24,797
Oahu	598	384,000	4,030	58,504
Kauai	547	348,000	5,250	20,562
Molokai	261	167,000	4,958	2,504
Lanai	139	86,000	3,400	619
Niihau	97	62,000	1,300	172
Kahoolawe	69	44,000	1,472	.....

Total area of Hawaiian Islands, 6,449 miles.

The outlying islets on the N. W. may amount to 6 square miles.

KILAUEA, ISLAND OF HAWAII.

Corrected for Deflection of the Vertical.

Area, 4.14 square miles, or 2,650 acres.
 Circumference, 41,500 feet, or 7.85 miles.
 Extreme width, 10,300 feet, or 1.95 miles.
 Extreme Length, 15,500 feet, or 2.93 miles.
 Elevation, Volcano House, 4,000 feet.

MOKUAWEOWEO.

The Summit Crater of Mauna Loa, Island of Hawaii.

Area, 3.70 square miles, or 2,370 acres.
 Circumference, 50,000 feet, or 9.47 miles.
 Length, 19,500 feet, or 3.7 miles.
 Width, 9,200 feet, or 1.74 miles. Elevation of summit, 13,675 feet.

HALEAKALA, MAUI.

The great Crater of Maui, the largest in the world.

Area, 19 square miles, or 12,160 acres.
 Circumference, 105,600 feet, or 20 miles.
 Extreme Length, 39,500 feet, or 7.48 miles.
 Extreme width, 12,500 feet, or 2.37 miles.
 Elevation to summit, 10,032 feet.
 Elevation of principal cones in crater, 8,032 and 1,572 feet.
 Elevation of cave in floor of crater, 7,380 feet.

IAO VALLEY, MAUI.

Length (from Wailuku), about 5 miles.
 Width of Valley, 2 miles.
 Depth, near head, 4,000 feet.
 Elevation of Puu Kukui, above head of Valley, 5,700 feet.
 Elevation of Crater of Eke, above Waihee Valley, 4,500 feet.

Standard and Local Time.

The Standard Time of the Hawaiian Islands is that of Longitude $157^{\circ} 30' W.$, 10 h. 30 m. slower than Greenwich Time. The time of sunrise and sunset given in the tables is of course local time; to correct this to standard time, add or subtract a correction corresponding with the differences between $157^{\circ} 30'$ and the longitude of the station.

The corrections would be for the following stations:

Niihau	+10:8 m	Wailuku, Maui	— 4:0 m
Mana, Kauai	+ 9:0 m	Haiku, Maui	— 4:8 m
Koloa, Kauai	+ 7:9 m	Hana, Maui	— 6:0 m
Kilauea, Kauai	+ 7:3 m	Kailua, Hawaii	— 6:2 m
Waialua, Oahu	+ 2:5 m	Kohala, Hawaii	— 7:0 m
Kahuku, Oahu	+ 2:0 m	Kukuihaele, Hawaii	— 8:0 m
Honolulu, Oahu	+ 1:5 m	Punaluu, Hawaii	— 8:0 m
Kalae, Molokai	— 2:0 m	Ookala, Hawaii	— 9:0 m
Lanai	— 2:5 m	Hilo, Hawaii	— 9:8 m
Lahaina, Maui	— 3:0 m		

LATEST CENSUS—HAWAIIAN ISLANDS.

From Census Bulletin, Washington, D. C., 1900.

Total Population by Districts and Islands—Comparative 1900 and 1896.

HAWAII.	1900	1896	OAHU.	1900	1896
Hilo	19,785	12,878	Honolulu	39,306	29,920
Puna	5,128	1,748	Ewa	9,689	3,067
Kau	3,854	2,908	Waianae	1,008	1,281
North Kona	3,819	3,061	Waialua	3,285	1,349
South Kona	2,372	2,327	Koolauloa	2,372	1,835
North Kohala	4,366	4,125	Koolaupoko	2,844	2,753
South Kohala	600	558			
Hamakua	6,919	5,680	KAUAI.	58,504	40,205
MAUI.	46,843	33,285	Waimea	5,714	4,431
			Niihau	172	164
Lahaina	4,352	2,398	Koloa	4,564	1,835
Wailuku	7,953	6,072	Kawaihau	3,220	2,762
Hana	5,276	3,792	Hanalei	2,630	2,775
Makawao	7,236	5,464	Lihue	4,434	3,425
	24,797	17,726		20,734	15,392
Molokai and Lanai	3,123	2,417	Total whole group	154,001	109,020

Comparative Table of Nationality of Population of Hawaiian Islands at various census periods since 1872.

Nationality	1872	1878	1884	1890	1896	1900
Natives	49,944	44,088	40,015	34,436	31,019	29,787
Part Hawaiians	1,487	3,420	4,218	6,186	8,485	7,848
Chinese	1,938	5,916	17,937	15,301	19,382	25,762
Americans	889	1,276	2,066	1,928	2,266	} 7,283
Hawaiian-born foreigners ..	849	947	2,040	7,495	13,733	
British	618	883	1,281	1,344	1,538	1,730
Portuguese	395	436	9,377	8,602	8,232	15,675
German	224	272	1,600	1,434	912	1,154
French	88	81	192	70	75	.....
Japanese .....	.....	.....	116	12,360	22,329	61,115
Norwegian .....	.....	.....	362	227	216	410
Other foreigners	364	666	416	419	424	2,584
Polynesian .....	.....	.....	965	588	409	653
Total	56,897	57,985	80,578	89,990	109,020	154,001

Population of Honolulu at various census periods.

1884	20,487	1096	29,926
1890	22,907	1900	39,300

Foreign Born Population of Hawaii, 1900, distributed according to country of births:

As reported for the Annual by the Census Bureau, Washington, D. C.

Country	Hawaii	Kauai and Niihau*	Lanai and Maui	Molokai	Oahu	Total
Atlantic Islands	522	76	154	12	392	1,156
Austria.....	99	26	64	....	36	225
Canada (Engl.)	79	11	9	2	238	339
China.....	4,202	3,265	2,988	77	11,209	21,741
England.....	142	35	49	6	507	739
Germany.....	135	334	71	11	603	1,154
Ireland.....	25	9	15	4	172	225
Japan.....	21,314	9,736	10,465	382	14,337	56,234
Norway and Demark.....	31	50	44	6	139	270
Pacific Islands..	49	63	161	11	308	593
Portugal.....	2,217	727	1,032	6	2,530	6,512
Scotland.....	163	39	39	1	185	427
Spain.....	54	12	27	....	109	202
Sweden.....	40	4	9	2	85	140
Other Countries	162	85	64	9	503	823
Total.....	29,234	14,472	15,191	529	31,354	0,780

*Niihau's share of Foreign born is 3; one each Scotch, Japanese and one other.

Native Born Population of Hawaii, 1900.

The total native born Population of Hawaii is 63,221, which is made up as follows:

Hawaiian.....	29,787	Negroes.....	178
Part Hawaiian.....	7,844	South Sea Islanders.....	60
Caucasians.....	7,283	Japanese.....	4,881
Portuguese.....	9,263	Chinese.....	4,021

Comparative Table, of Population, Hawaiian Islands—Census Periods 1853-1900.

Islands	1853	1860	1866	1872	1878	1884	1890	1896	1900
Hawaii....	24,450	21,481	19,808	16,001	17,034	24,991	26,754	33,285	46,843
Maui.....	17,574	16,400	14,035	12,334	12,109	15,970	17,357	17,726	24,797
Oahu.....	19,126	21,275	19,799	20,671	20,236	28,068	31,194	40,205	58,504
Kauai.....	6,991	6,487	6,299	4,961	5,634	*8,935	11,643	15,228	20,562
Molokai...	3,607	2,864	2,299	2,349	2,581	....	2,652	2,307	2,504
Lanai.....	600	646	394	348	214	2,614	174	105	619
Niihau....	790	647	325	233	177	....	216	164	172
Kahoolawe	....	....	....	....	....	....	....	....	....
Total....	73,138	69,800	62,959	56,897	57,985	80,578	89,900	109,020	154,001.
All For'g'rs	2,119	2,716	4,194	5,366	10,477	36,346	49,368	69,516	116,366
Hawaiians	71,019	67,084	58,765	51,531	47,508	44,228	40,622	39,504	37,635

*Including Niihau.

School Statistics, Territory of Hawaii.

From Report of the Superintendent of Public Instruction.
NUMBER OF SCHOOLS, CLASS, ETC., DEC. 1906.

ISLANDS	PUBLIC SCHOOL					PRIVATE SCHOOLS		
	No. of Schools	No. of Teachers	No. of Pupils			No. of Schools	No. of Teachers	No. of Pupils
			Boys	Girls	Total			
Hawaii	59	140	2,919	2,341	5,260	10	31	714
Oahu	34	158	3,350	2,955	6,305	33	185	3,254
Maui, Molokai and Lanai	41	81	1,594	1,268	2,862	16	39	1,144
Kauai and Niihau ..	17	52	1,212	1,012	2,224	3	6	127
Totals	151	431	9,075	7,576	16,651	62	261	5,239

NUMBER OF SCHOOLS, TEACHERS AND PUPILS. 1906.

CLASS	Schools	TEACHERS			PUPILS		
		M.	F.	Total	M.	F.	Total
Public Schools	151	105	328	431	9,075	7,576	16,651
Private "	62	81	180	261	2,872	2,427	5,239
Totals	213	184	508	692	11,887	10,003	21,890

AGES OF PUPILS IN PUBLIC AND PRIVATE SCHOOLS, JUNE. 1906

SEX	Under 6	6-15	Over 15	Total
Boys	648	10,309	930	11,887
Girls	614	8,778	611	10,003
Total	1,262	19,087	1,541	21,890

NATIONALITY OF PUPILS, 1906.

	Public	Private		Public	Private
Hawaiians	4,106	800	Chinese	1,594	603
Part Hawaiians	2,460	1,040	Japanese	3,828	719
Americans	507	502	Porto Ricans	392	.....
English	106	81	Korean	161	.....
Germans	154	119	Other Foreigners ..	95	104
Portuguese	3,204	1,233			
Scandinavian	44	38	Total	16,651	5,239

The nationality of teachers in all schools of the Islands, 1906, was as follows: Hawaiian, 89; Part Hawaiian, 124; American, 326; English, 61; Scandinavian, 25; Germans, 14; Portuguese, 17; Chinese, 18; Japanese, 9; other Foreigners, 21; Total, 704.

Church Statistics, 1907.

DENOMINATIONS	No. of Churches	No. of Pastors or Priests	No. of Members	No. of Sun. Schls	No. of Sunday School Scholars	Value of Church Property
Christian Church	4	1	150	4	150	\$ 13,500
MethodistEpiscopal Church	17	17	994	28	1,362	58,740
Latter Day Saints	20	220	5,133	63	2,404	16,784
Reorganized Church ...	1	1	156	3	100	6,500
German Lutheran Ch'ch	2	2	250	2	28	50,000
Seventh Day Adventists	1	1	30	1	40	6,000
Prot. Episcopal Church	10	16	2,500	14	723	149,000
Buddhists (4 Sects)	35	40	46,000	.....	.....	80,200
Congregational Church,	97	83	6,569	91	7,287	759,915
Roman Catholic Church	105	31	35,000	15	2,400	300,000
Total	292	412	96,782	221	14,494	\$ 1,440,639

Vital Statistics, Territory of Hawaii.

For the Fiscal Year ending June 30, 1907. Summarized from Board of Health Reports.

ISLANDS, ETC.	Births	Marriages	Deaths
Honolulu	669	959	1,056
Other District of Oahu County	349	49	311
Hawaii County	915	267	673
Maui County	415	160	518
Kalawao County	20	33	98
Kauai County	480	212	366
Total, 1906-07	2,848	1,680	3,022
" 1905-06	2,672	1,238	2,798
" 1904-05	2,490	1,180	2,640

Population of Honolulu, 1900.

Compiled from U. S. Census Report by Dr. A. Marques.

Hawaiians and Haw'n born		Pacific Islanders.....	293
foreigners	19,023	Scandinavian	146
Chinese	6,842	French	80
Japanese.....	5,595	Spanish.....	72
American	2,846	Italian	54
Portuguese	2,410	Other Europeans.....	197
British.....	1,107	Various	88
German	553		
		Total	39,306

LAHAINA is said by early native writers to have had two other names in ancient times, it being first known as Honoapiilani. Subsequently this was changed to Lele, and in later times to Lahaina—as known to this day.

Import Values from United States for fiscal year ending June, 1907.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles.	Domestic Mdse.	Foreign Mdse.	
		Dutiable	Free
Agricultural Implements	\$ 22,999	.....	.....
Aluminum	2,282	.....	.....
Animals	124,220	.....	.....
Art Works	2,678	.....	.....
Books, Maps, etc.....	85,021	\$ 34	.....
Brass, and manufactures of.....	45,776	.....	.....
Breadstuffs	1,452,608	106	.....
Bricks	8,451	.....	.....
Brooms and Brushes.....	19,663	.....	.....
Candles	11,646	.....	.....
Carriages, Cars, etc., and parts of...	329,711	.....	.....
Cement	15,881	.....	.....
Chemicals, Drugs, Dyes, etc.....	441,871	205,307	3,200
Clocks, Watches, and parts of.....	19,215	.....	.....
Coal and Coke	25,497	.....	.....
Cocoa and Chocolate.....	10,755	.....	.....
Coffee, prepared	12,118	.....	300
Copper and manufactures of.....	44,286	.....	.....
Cork, manufactures of.....	5,633	.....	.....
Cotton, manufactures of.....	1,606,157	12,133	.....
Earthen, Stone and Chinaware.....	60,216	6,255	.....
Eggs	14,943	.....	.....
Feathers	981	.....	.....
Fertilizers	698,241	.....	.....
Fibers, Textile Grasses, man. of....	149,540	182	.....
Fish	271,673	4,406	.....
Fruits and Nuts.....	183,022	863	.....
Furniture of Metal.....	11,852	.....	.....
Glass and Glassware.....	104,320	572	.....
Gunpowder and other Explosives....	63,977	.....	.....
Hair and manufactures of.....	5,909	.....	.....
Hay	188,087	.....	.....
India Rubber, manufactures of.....	113,824	.....	.....
Instruments, etc., for scientific purp.	104,857	.....	.....
Iron and Steel and manufactures of.	89,894	.....	.....
Sheets and Plates, etc.....	328,423	.....	.....
Builder's Hardware, etc.....	293,943	.....	.....
Machinery, Machines, parts of..	601,147	.....	.....
Nails, Spikes, Pipes, etc.....	523,523	.....	.....
Jewelry & man'frs., Gold & Silver..	7,267	255	.....
Lamps, Chandeliers, etc.....	39,059	.....	.....
Lead and manufactures of.....	29,322	.....	.....
Leather and manufactures of.....	513,686	557	.....
Lime	59,203	.....	.....
Malt	17,459	.....	.....
Marble, Stone and manufactures of..	13,369	.....	.....
Matches	26,288	.....	.....

Import Value from United States for 1907—Continued.

Articles.	Domestic Mdse.	Foreign Mdse.	
		Dutiable	Free
Musical Instruments	\$ 45,220	\$ 433	.....
Naval Stores	17,791	.....	.....
Nursery Stock	2,153	.....	.....
Oil Cloths	13,119	.....	.....
Oils; Animal, Mineral, Crude.....	649,875	.....	.....
Refined, etc.	352,314	.....	.....
Vegetable	36,034	3,149	\$ 6,969
Paints, Pigments and Colors.....	110,030	.....	.....
Paper and manufactures of.....	253,206	101	.....
Perfumery, etc.	8,699	4	.....
Plated Ware	16,589	.....	.....
Provisions, etc., Beef Products.....	46,602	.....	.....
Hog and other Meat Products..	260,622	.....	.....
Dairy Products	309,058	.....	.....
Rice	34,144	.....	.....
Salt	7,960	.....	.....
Seeds	6,573	.....	.....
Shells	198	.....	.....
Silk and manufactures of.....	54,744	80	.....
Soap; Toilet and other.....	98,762	.....	.....
Spices . . . . .	.....	.....	.....
Spirits, etc., Malt Liquors.....	114,788	843	.....
Spirits, distilled	149,217	20,780	.....
Wines	294,004	12,968	.....
Starch	15,677	.....	.....
Straw and Palm Leaf, man. of.....	36,027	81	.....
Sugar, Molasses and Confectionery..	134,869	575	.....
Tea . . . . .	.....	.....	11,973
Tin and manufactures of.....	48,996	.....	3,435
Tobacco, manufactures of.....	569,940	4,796	.....
Toys	26,489	693	.....
Trunks, Valises, etc.....	28,704	.....	.....
Varnish	11,409	.....	.....
Vegetables	202,526	2,928	.....
Vinegar	8,216	.....	.....
Wood and manufactures of.....	.....	252	.....
Timber and unmanufactured....	41,320	.....	.....
Lumber, Shingles, etc.....	680,068	.....	.....
Doors, Sash, Blinds and all other	111,694	.....	.....
Furniture, n. e. s.....	102,951	.....	.....
Wool, manufactures of.....	261,195	5,414	.....
Zinc and manufactures of.....	5,419	.....	.....
All other articles	150,595	803	111
Total	\$14,124,376	\$ 285,361	\$ 25,988

**Value Domestic Mdse. shipments to the United States from
Hawaii for fiscal years ending June 30, 1906, and 1907.**

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Articles	1906	1907
Animals	\$ 310	\$ 3,000
Art Works, Paintings, etc.....	8,103	5,802
Beeswax	6,745	4,373
Books and printed matter.....	10,486	13,091
Brass and manufactures of.....	3,127	7,522
Breadstuffs	8,878	6,530
Carriages, etc., and parts of.....	13,930	19,688
Chemicals, drugs, etc.....	15,277	13,160
Coffee	248,618	129,249
Copper and manufactures of.....	3,065	10,968
Cotton and manufactures of.....	16,213	5,931
Earthenware, etc.	599	1,100
Fibers and textiles	9,649	14,997
Fish	481	1,332
Fruits and nuts	287,603	393,979
Glass and glassware.....	6,318	8,249
Hides and skins.....	126,425	141,883
Honey	34,048	26,680
India Rubber, manufactures of.....	3,125	3,268
Instruments for science purposes, etc.....	1,557	2,034
Iron, steel and manufactures of.....	25,962	3,881
Machinery and parts of.....	17,417	53,030
All other manufactures of iron, etc.....	24,085	41,234
Jewelry	18,916	22,997
Leather and manufactures of.....	22,116	22,874
Marble and stone.....	1,283	1,093
Meat and dairy products.....	7,499	8,200
Molasses	177	355
Musical instruments and parts.....	5,614	1,587
Oils, paints, varnish, etc.....	2,094	989
Paper and manufactures of.....	1,988	3,429
Provisions, etc.	7,499	.....
Rice	223,012	147,439
Silk, manufactures of.....	10,127	4,762
Spirits, Wines, etc.....	2,400	8,307
Straw and palm leaf, manufactures of.....	559	2,579
Sugar, brown	23,840,803	26,860,002
Sugar, refined	1,654,624	832,095
Tobacco, manufactures of.....	1,764	1,914
Toys	748	544
Vegetables.....	3,343	1,921
Wood and manufactures of.....	47,543	63,261
Wool, raw	45,883	54,548
Wool, manufactures of.....	8,358	4,808
All other articles.....	72,092	98,996
Total shipments domestic merchandise...	\$26,850,463	\$29,054,581
Total shipments foreign merchandise....	31,736	17,232
Total to United States.....	\$26,882,199	\$29,071,813

Hawaii's Commerce with Foreign Countries.

Total Import and Export Values for 1906 and 1907.

Compiled from Monthly Summary of Commerce and Finance, Bureau of Statistics.

Countries.	Imports.		Exports.	
	1906	1907	1906	1907
Argentina.....				\$ 1,000
Austria-Hungary.....		\$ 346		
Belgium.....	\$ 6,806	3,572		
Canada.....	22,501	47,392	\$ 15,303	14,444
Great Britain.....	424,976	483,341	5,512	44,230
Germany.....	171,497	348,667	391	340
France.....	9,732	14,210		
Italy.....	1,366	382		
Netherlands.....	3,429	5,676		
Norway.....	208	265		
Portugal.....	484	419		
Spain.....	3,850	3,919		
Sweden.....	3	961		
Chile.....	448,608	325,637	2,778	
China.....	3,984	4,129		3,600
East Indies.....	415,131	664,440		1,450
Hong Kong.....	245,244	296,975	2,004	994
Japan.....	1,247,470	1,557,441	20,080	141,240
Australasia.....	262,594	310,574	8,348	10,236
Oceania.....	1,182	71,856	742	2,520
Korea.....				9,714
Philippines.....	6,051	11,454	2,155	146
United States*.....	12,036,675	14,435,725	26,882,199	29,071,813
All other.....	126	53		
Total.....	\$15,311,917	\$18,587,434	\$26,939,512	\$29,301,727

* Not including coin shipments.

Exports and Imports for fiscal year ending June 30, 1907.

Exports—Domestic produce to United States.....	\$29,054,581
Foreign produce to United States.....	17,232
Coin shipments to United States.....	1,968
Domestic produce to Foreign Countries.....	183,981
Foreign produce to Foreign Countries.....	45,933
Total export value.....	\$29,303,695
Imports—Domestic produce from United States.....	\$14,124,376
Foreign produce from United States.....	311,349
Coin shipments from United States.....	75,000
Produce from Foreign Countries.....	4,151,709
Total import value.....	\$18,662,434

**Quantity and Value of Principal Articles of Domestic Produce
Shipped to U. S. for the fiscal year ending June 30, 1907.**

Articles		Quantity	Value
Sugar, raw	pounds.....	804,294,041	\$26,860,002
Sugar, refined	"	17,765,770	832,995
Coffee, raw	"	1,008,374	128,875
Rice	"	3,324,107	147,439
Fibers .....	.....	.....	14,997
Fruits, green .....	.....	.....	115,771
canned .....	.....	.....	267,629
all other .....	.....	.....	10,441
Honey .....	.....	.....	26,680
Beeswax	pounds.....	14,136	4,373
Hides and skins	"	1,213,304	141,883
Wool, raw	"	336,159	54,548
Tallow	"	188,282	7,719
Timber, lumber & unmnftd wood ..	.....	.....	13,318
Molasses	gallons.....	6,917	355

Comparative Table Importations from Japan, 1902-1906.

Courtesy of Dr. A. Marques.

Articles.	1902-1903.	1903-1904.	1904-1905.	1905-1906
Sake and Wines.....	\$205,526	\$ 171,856	\$154,366	\$201,668
Rice and its flour....	236,076	446,121	222,686	285,194
Vegetables	92,273	87,424	79,502	94,095
Sauces	118,155	138,540	115,747	140,472
Cotton Wares.....	52,413	50,302	48,225	73,036
Fish	61,608	78,131	80,088	69,006
Breadstuffs	20,420	24,096	18,930	28,263
Woodwork	25,170	24,499	24,030	21,830
Silks	24,206	23,495	27,129	49,119
Tea	14,239	15,883	10,173	14,936
Provisions	2,035	2,130	796	1,072
Coal (bituminous)...	.....	5,466	38,449	67,703
All others.....	118,470	137,112	142,530	200,076
Total	\$970,591	\$1,205,055	\$962,651	\$1,247,470

Coast Line Distance of Hawaiian Islands.

Courtesy of W. E. Wall, Government Survey Office.

	MILES		MILES
Distance around Hawaii.....	297	Distance around Molokai.....	100
" " Oahu	177	" " Lanai.....	53
" " Maui	146	" " Niihau.....	48
" " Kauai	106	" " Kahoolawe..	30

Total Coast line distance around the islands 957 miles.

Hawaiian Sugar Plantation Statistics.

Year	Sugar.		Molasses.		Total export Value.
	Pounds	Value.	Gallons.	Value.	
1875.....	25,080,182	\$ 1,216,388.82	93,722	\$ 12,183.85	\$ 1,228,572.68
1876.....	26,072,429	1,272,334.53	130,073	19,510.95	1,291,845.48
1877.....	25,575,965	1,777,529.57	151,462	22,719.30	1,800,248.87
1878.....	38,431,458	2,701,731.50	93,136	12,107.68	2,713,839.18
1879.....	49,020,972	3,109,566.66	87,475	9,622.52	3,119,185.91
1880.....	63,584,871	4,322,711.48	198,355	29,753.52	4,352,464.73
1881.....	93,789,483	5,395,399.54	263,587	31,630.44	5,427,020.98
1882.....	114,177,938	6,320,890.65	221,293	33,193.95	6,354,084.60
1883.....	114,107,155	7,112,981.12	193,997	34,819.46	7,147,800.58
1884.....	142,654,923	7,328,896.67	110,530	16,579.52	7,345,476.17
1885.....	171,350,314	8,356,061.94	57,941	7,050.00	8,363,111.94
1886.....	216,223,615	9,775,132.12	113,137	14,501.76	9,789,633.88
1887.....	212,763,647	8,694,964.07	71,222	10,522.76	8,705,486.83
1888.....	235,888,346	10,818,883.09	47,965	5,900.40	10,824,783.49
1889.....	242,165,835	13,089,302.10	54,612	6,185.10	13,095,487.20
1890.....	259,789,462	12,159,585.01	74,926	7,603.29	12,167,188.30
1891.....	274,983,580	9,550,537.80	55,845	4,721.40	9,555,258.20
1892.....	263,636,715	7,276,549.24	47,988	5,061.07	7,281,610.34
1893.....	330,822,879	10,200,958.37	67,282	5,928.96	10,206,887.33
1894.....	306,684,993	8,473,009.10	72,979	6,050.11	8,479,059.21
1895.....	294,784,819	7,975,590.41	44,970	3,037.83	7,978,628.24
1896.....	443,569,282	14,932,172.82	15,885	1,209.72	14,933,382.54
1897.....	520,158,232	15,390,422.13	33,770	2,892.72	15,393,314.85
1898.....	444,963,036	16,614,622.53	14,537	919.18	16,615,541.71
1899.....	545,370,537	21,898,190.97	11,455	358.55	21,898,549.52
1900*.....	344,531,173	13,919,400.21	120	10.00	13,919,410.21
1901**.....	690,882,132	27,094,155.00	93,820	4,615.00	27,098,770.00
1902.....	720,553,357	23,920,113.00	48,036	2,187.00	23,922,300.00
1903.....	774,825,420	25,310,684.00	10	1.00	25,310,685.00
1904.....	736,491,992	24,359,385.00	11,187	712.00	24,360,097.00
1905.....	832,721,637	35,112,148.00	26,777	1,282.00	35,113,430.00
1906.....	746,602,637	24,495,427.00	3,180	177.00	24,495,604.00
1907.....	822,014,811	27,692,997.00	6,917	355.00	27,693,352.00

* Five and one-half months to June 14. ** Fiscal year ending June 30.

Nationality of Plantation Labor, 1905-1906.

	1905	1906		1905	1906
Americans	654	614	Japanese	28,030	25,879
Portuguese	3,194	3,310	Koreans	4,893	3,675
Other Europeans....	455	456	Chinese	3,938	3,660
Hawaiians	1,711	1,742	Others	45	18
Porto Rican	2,029	1,949			
			Total	44,949	41,303

Hawaii's Annual Trade Balance, etc., from 1880.

Year.	Imports.	Exports.	Excess export Values.	Custom house Receipts.
1880.....	\$ 3,673,268.41	\$ 4,968,444.87	\$ 1,295,176.46	\$ 402,181.63
1881.....	4,547,978.64	6,885,436.56	2,337,457.92	523,192.01
1882.....	4,974,510.01	8,299,019.70	3,324,506.69	505,390.98
1883.....	5,624,240.09	8,133,343.88	2,509,103.79	577,332.87
1884.....	4,637,514.22	8,856,610.30	4,219,096.08	551,736.59
1885.....	3,830,544.58	9,158,818.01	5,328,273.43	502,337.38
1886.....	4,877,738.73	10,565,885.58	5,688,146.85	580,444.04
1887.....	4,943,840.72	9,707,047.33	4,763,206.61	595,002.64
1888.....	4,540,887.46	17,707,598.76	7,166,711.30	546,142.63
1889.....	5,438,790.63	13,874,341.40	8,435,560.77	550,010.16
1890.....	6,962,201.13	13,142,829.48	6,180,628.35	695,956.91
1891.....	7,439,482.65	10,258,788.27	2,819,305.62	732,594.93
1892.....	4,028,295.31	8,060,087.21	4,031,791.90	494,385.10
1893.....	4,363,177.58	10,818,158.09	6,454,980.51	545,754.16
1894.....	5,104,481.43	9,140,794.56	4,036,313.13	522,855.41
1895.....	5,339,785.04	8,474,138.15	3,134,353.11	547,149.04
1896.....	6,063,652.41	15,515,230.13	9,451,577.72	656,895.82
1897.....	7,682,628.09	16,021,775.19	8,339,147.10	708,493.05
1898.....	10,368,815.09	17,346,744.79	6,977,929.70	896,675.70
1899.....	16,069,576.96	22,628,741.82	6,559,164.86	1,295,628.95
1900*.....	10,231,197.58	14,404,496.16	4,173,298.58	597,897.14
1901**.....	24,964,693.43	29,342,697.00	4,378,003.57	1,264,862.78
1902.....	22,036,583.00	24,793,735.00	2,757,152.00	1,327,518.23
1903.....	13,982,485.00	26,275,438.00	12,292,953.00	1,193,677.83
1904.....	15,784,691.00	25,204,875.00	9,420,184.00	1,229,338.15
1905.....	14,718,483.00	36,174,526.00	21,456,043.00	1,043,340.38
1906.....	15,639,874.00	26,994,824.00	11,354,950.00	1,218,764.13
1907.....	18,662,434.00	29,303,695.00	10,641,261.00	1,458,843.48

* Five and one-half months to June 14th. ** Twelve and one-half months to June 30, 1901. Imports from U. S. ports for 1901 estimated at \$22,000,000, and for 1902 at \$19,000,000.

Summary of Insurance Business, Territory of Hawaii, for the year 1906.

From Report of Insurance Commissioner,

Class.	Amount Written	Amount Premiums	Losses and Claims paid
Fire	\$42,734,296	\$ 742,709	\$ 124,671
Marine	55,350,840	475,331	256,455
Life, new	} 3,609,625	147,690	} 393,263
" renewals		833,351	
Accident, etc. . . . .	.....	24,432	8,156
Surety . . . . .	.....	24,571	811
Liability . . . . .	.....	9,325	2,348
Plate Glass . . . . .	.....	1,917	.....
Burglary . . . . .	.....	26	.....
Total	\$101,694,751	\$ 2,259,352	\$ 785,704

**Table of Receipts, Expenditures, and Public Debt of Hawaii,
for Biennial Periods up to 1894, then Annually.**

(Latter years from Auditor's Report.)

Years.	Revenue.	Expenditures.	Cash Balance in Treasury.	Public Debt.
1856.....	\$ 419,288.16	\$ 424,778.25	\$ 28,096.84	\$ 22,000.00
1858.....	537,223.86	599,879.61	349.24	60,679.15
1860.....	571,041.71	612,410.55	13,127.52	128,777.32
1862.....	528,039.92	606,893.33	507.40	188,671.86
1864.....	538,445.34	511,511.10	22,583.29	166,649.09
1866.....	721,104.30	566,241.02	169,059.34	182,974.60
1868.....	825,498.98	786,617.55	163,576.84	120,815.23
1870.....	834,112.65	930,550.29	61,580.20	126,568.68
1872.....	912,130.74	969,784.14	56,752.41	177,971.29
1874.....	1,136,523.95	1,192,511.79	746.57	355,050.76
1876.....	1,008,956.42	919,356.93	89,599.49	459,187.59
1878.....	1,151,713.45	1,110,471.90	130,841.04	444,800.00
1880.....	1,703,736.88	1,495,697.48	338,880.44	388,900.00
1882.....	2,070,259.94	2,282,599.33	126,541.05	299,200.00
1884.....	3,092,085.42	3,216,406.05	2,220.42	898,800.00
1886.....	3,010,654.61	3,003,700.18	9,174.85	1,065,600.00
1888.....	4,812,575.96	4,712,285.20	109,465.60	1,936,500.00
1890.....	3,632,196.85	3,250,510.35	491,152.10	2,599,502.94
1892.....	3,916,880.72	4,095,891.44	312,141.38	3,217,161.13
1894.....	3,587,204.98	3,715,232.83	184,113.53	3,417,459.87
1894.....	1,972,135.43	1,854,053.08	69,225.76	3,574,030.16
1895.....	2,050,729.41	2,284,179.92	302,676.27	3,764,335.03
1896.....	2,383,070.78	2,137,103.38	315,193.16	3,914,608.35
1897.....	2,659,434.16	2,617,822.89	456,804.43	4,390,146.65
1898.....	2,709,489.12	2,299,937.57	740,280.21	4,457,605.85
1899.....	3,854,231.50	3,038,638.38	1,531,784.29	4,890,351.49
1900.....	2,772,871.87	3,727,926.28	624,471.25	4,226,374.61
1901.....	2,140,297.36	2,576,685.53	287,131.30	939,970.31
1902.....	2,473,172.81	2,382,968.90	77,914.36	1,093,970.31
1903.....	2,387,715.88	2,603,194.20	56,613.29	2,185,000.00
1904.....	2,415,356.33	2,844,054.81	68,592.03	3,317,000.00
1905.....	2,354,783.37	2,240,731.55	59,408.49	3,861,000.00
1906.....	3,320,998.90	2,512,675.89	335,331.37	3,818,000.00
1907.....	2,716,624.00	2,665,845.74	348,216.51	3,718,000.00

Hawaii's Bonded Debt, June 30, 1907.

Stock A 5 per cent. Bonds (Act of 1896).....	\$ 53,000
Fire Claims Bonds issued.....	315,000
Public Improvement 4½% Bonds, 1903-04.....	1,000,000
Public Improvement 4¼% Bonds, 1904-05.....	1,000,000
Refund Bonds, 1905.....	600,000
Public Improvement 3½% Bonds.....	750,000

Total Bonds Outstanding.....\$3,718,000

INTERNAL TAXES FOR BIENNIAL PERIODS 1888-1894; SINCE, ANNUAL.

Periods	Real Estate	Personal Property	Poll	Income	Ins'ance	Dogs	Car'ages	Penalty and Costs	Roads Carts and Bicycles	School	Totals
1888.....	\$ 252,362	\$ 299,974	\$ 63,115	\$.....	\$ 6,279	\$ 11,985	\$11,835	\$.....	\$ 120,872	\$ 119,565	\$ 885,987
1890.....	339,390	329,908	69,116	.....	3,063	14,100	13,940	.....	132,285	131,160	1,032,963
1892.....	358,745	341,205	78,964	.....	4,150	13,660	14,628	.....	152,137	151,906	1,115,401
1894.....	338,894	213,126	78,990	.....	3,867	11,741	11,980	5,476	152,268	152,247	1,068,592
1894 9 months.	167,083	151,580	39,050	.....	1,850	4,698	4,427	3,922	74,891	75,082	522,583
1895.....	196,668	164,272	43,663	.....	1,803	5,971	5,425	7,297	84,183	83,470	592,692
1896.....	240,971	210,194	46,655	.....	1,837	6,302	5,889	7,255	90,297	89,443	698,841
1897.....	246,828	242,719	47,973	.....	974	7,313	5,849	10,375	101,858	95,814	759,703
1898.....	268,203	266,621	49,580	.....	2,185	6,248	5,717	8,476	105,814	98,974	811,818
1899.....	384,594	377,075	54,828	.....	2,883	6,141	6,253	10,155	116,374	109,814	1,068,117
1900.....	440,265	487,078	67,119	.....	3,224	5,377	7,241	9,280	141,342	134,232	1,295,158
1901.....	521,451	571,964	50,829	279,743	3,810	4,589	8,397	8,984	108,829	101,258	1,659,854
1902.....	560,111	584,112	46,369	192,506	4,663	3,864	9,072	11,345	100,681	92,734	1,605,460
1903.....	609,241	593,288	49,490	187,497	4,681	4,404	9,864	13,267	107,650	98,980	1,678,362
1904.....	615,127	562,382	49,531	155,786	56	4,543	9,427	13,669	107,885	99,062	1,617,468
1905.....	663,009	667,856	49,020	326,733	.....	5,161	9,670	14,738	107,156	98,040	1,941,383
1906.....	651,838	617,240	50,069	146,756	.....	5,382	*1,240	18,876	129,817	100,138	1,721,356

* Automobiles.

Annual Taxes, from 1896, showing per capita rate collected.

	Taxes collected	Per capita*
1896.....	\$ 698,844	6.32
1897.....	759,707	6.54
1898.....	811,818	6.45
1899.....	1,068,117	7.11
1900.....	1,295,158	8.41
1901.....	1,659,854	10.77
1902.....	1,605,460	10.42
1903.....	1,678,362	10.59
1904.....	1,617,468	10.50
1905.....	1,941,383	12.60
1906.....	1,721,356	11.17

* Omitting fractions.

SUMMARY OF METEOROLOGICAL OBSERVATIONS, 1906-1907.

Compiled from U. S. Weather Bureau Records, by Wm. B. Stockman, Section Director.

(Continued from preceding Annuals.)

MONTH	BAROMETER		RAIN- FALL	REL. HUM.		MEAN TEMPERATURE					ABSO. HUM.	Cloud Amt.	Wind Force	
	8 a.m.	8 p.m.		8 a.m.	8 p.m.	Min.	Max.	6 a.m.	2 p.m.	9 p.m.				Mean of Max. and Min.
(July	30.02	30.00	1.42	65	69	72.7	83.1	74.4	81.5	76.1	77.9	6.886	3.9	8.8
(August.....	30.00	29.98	0.64	65	68	73.9	83.5	74.7	82.0	77.1	78.7	6.997	3.9	8.8
(September....	30.00	29.99	1.19	66	71	73.5	83.8	74.8	82.1	76.6	78.6	7.209	3.9	8.2
(October	30.00	29.99	0.84	68	73	72.5	82.9	74.4	81.5	76.6	77.7	7.194	3.8	7.9
(November.....	29.97	29.96	5.69	71	78	69.8	80.3	71.4	78.6	73.9	75.0	6.923	5.0	7.5
(December.....	29.99	29.97	10.02	76	81	68.0	77.2	70.4	75.7	72.2	72.6	6.848	5.9	10.9
(January	29.91	29.90	12.44	82	85	67.2	77.2	69.6	75.0	71.3	72.2	7.146	6.8	7.6
(February.....	30.04	30.03	5.87	72	74	67.9	77.3	69.2	75.5	71.5	72.6	6.411	4.2	8.8
(March	30.02	30.01	2.14	68	74	65.5	75.6	67.2	73.0	69.6	70.6	5.850	5.7	10.7
(April	30.08	30.05	0.64	63	69	66.3	72.2	67.5	75.6	70.3	71.8	5.616	3.7	9.7
(May	30.02	30.00	0.67	68	75	70.3	80.5	70.8	79.3	73.6	75.4	6.736	5.0	7.5
(June	30.01	29.99	0.49	66	73	72.6	82.3	73.3	80.8	75.1	77.4	6.973	4.2	7.8
Year	30.00	29.99	42.05	69	74	70.0	80.1	71.5	78.4	73.7	75.0	6.732	4.7	8.7

TABLE OF RAINFALL, PRINCIPAL STATIONS.

Compiled from Weather Bureau Reports,

Stations	Observer	1906					
		July	Aug.	Sept.	Oct.	Nov.	Dec.
HAWAII							
Waiakea	C. C. Kennedy	12.31	19.51	6.54	4.12	15.55	9.98
Hilo (Town)	L. C. Lyman...	14.52	20.62	7.11	4.58	17.92	11.65
Kaumana	J. E. Gamalielson ..	14.73	29.22	7.84	6.10	18.13	17.45
Pepeekeo	W. H. Rogers..	9.01	17.43	8.13	3.84	15.88	13.53
Hakalau	J. M. Ross.....	11.13	22.04	8.59	4.00	17.85	17.03
Laupahoehoe	E. W. Barnard.	11.57	16.87	5.39	5.72	11.05	17.77
Ookala	W. G. Walker.	9.53	13.79	3.61	3.14	8.05	16.15
Kukaiau	E. Madden....	8.11	11.30	2.38	1.81	6.90	15.60
Paauhau	Jas. Gibb.....	7.03	9.10	1.47	1.09	6.02	15.31
Honokaa	S. Gundelfinger ..	7.08	8.48	1.52	1.04	3.50	18.24
Waimea	Jas. Laird.....	2.28	3.56	0.26	2.15	4.85	16.10
Kohala	Dr. B. D. Bond	7.68	5.69	2.76	2.49	3.87	13.71
Holualoa	L. S. Aungst..	6.42	8.26	3.25	6.18	4.49	7.76
Kealahoukua	Rev. S.H. Davis	4.29	9.76	6.41	9.97	3.60	5.90
Naalehu	C. Wolters.....	1.20	5.54	0.67	1.34	13.95	6.82
Pahala	Haw. Agr. Co.	0.46	8.25	0.26	0.98	14.48	7.01
Volcano House..	Geo. Lycurgus.	5.66	12.18	1.94	2.37	10.35	11.25
Pahoa	G. Kamahele ..	12.12	20.42	.....	.....	.....	13.46
Kapoho	H. J. Lyman...	6.80	10.24	6.59	3.91	13.04	12.14
MAUI							
Haleakala Ranch	L. von Tempsky...	1.86	7.18	1.60	8.39	4.64	35.43
Pu uo malei	A. McKibbin..	3.92	11.47	3.84	5.78	6.03	19.51
Makawao	F. W. Hardy...	3.21	12.67	2.16	16.21	7.26	42.44
Kula	Mrs. D. von Tempsky	1.22	2.44	1.41	5.61	1.86	10.90
Haiku	D. D. Baldwin	4.58	10.44	6.58	5.76	4.91	17.37
Kipahulu.....	H. Neubaur...	4.34	9.55	2.10	10.65	6.12	.....
Nahiku	C. O. Jacobs....	13.41	24.64	9.74	11.70	23.09	27.49
Wailuku	Bro. Frank....	0.73	1.41	0.52	1.84	2.38	10.49
OAHU							
Honolulu	U. S. Weather Bureau	1.42	0.64	1.19	0.84	5.69	10.02
U. S. Exp. Stn..	D. L. Van Dine	3.36	2.93	3.79	2.97	7.49	14.85
Kinaiu Street...	W. R. Castle...	1.44	0.95	1.92	0.89	6.05	12.63
Manoa	F. N. Parker...	7.82	8.65	7.82	7.74	10.94	25.69
Kalihi-uka	Dr. Geo. H. Huddy..	8.51	10.23	6.29	8.24	11.73	24.64
Nuuanu Ave.....	W. W. Hall.....	2.96	2.28	3.02	2.21	6.98	13.04
Electric Lt. St..	Frank De Mello	4.49	4.54	4.53	3.62	10.18	15.42
Luakaha	L. A. Moore....	9.89	10.59	9.01	9.44	16.11	25.89
Waimanalo.....	A. Irvine.....	1.52	1.40	1.21	1.76	5.76	15.81
Maunawili.....	Jno. Herd.....	3.52	4.06	3.94	4.47	11.34	16.61
Ahuimanu.....	H. R. Macfarlane..	4.62	4.37	5.54	7.11	11.88	3.84
Kahuku	R. T. Christophersen..	1.27	3.07	2.44	2.97	7.25	26.91
Ewa Plantation..	R. Muller.....	0.40	0.21	0.44	0.35	5.34	10.09
Wahiawa	H. C. Brown...	3.08	4.23	2.47	3.71	8.85	13.22
Waiawa	W. R. Waters..	1.99	2.54	2.74	2.56	7.48	13.07
KAUAI							
Grove Farm.....	G. N. Wilcox..	1.75	5.79	2.12	3.09	3.12	13.95
Kealia	A. W. Peterson	0.99	3.24	2.24	3.33	3.77	6.39
Kilauea	L. B. Boreiko..	1.85	3.38	3.34	3.77	3.72	5.74
Hanalei	E. G. K. Deverill	2.63	7.45	1.98	7.30	6.48	13.69
Eleele	McBryde Sugar Co..	0.23	2.46	1.05	0.76	2.30	4.49
Kukuiula.....	F. L. Zoller...	3.26	7.32	3.50	4.53	4.22	10.46

Throughout the Hawaiian Islands, 1906-07.

By Wm. B. Stockman, Section Director. Continued from last Annual.

Locality	Feet Elev.	1907						
		Jan.	Feb.	Mar.	April	May	June	Annual
HAWAII								
Waiakea..	50	4.63	12.29	20.70	6.58	5.90	8.50	126.61
Hilo..	100	5.69	11.25	13.94	5.50	4.76	10.99	128.53
Kaumana..	1050	6.59	14.01	21.58	8.13	8.59	14.00	166.37
Pepeekeo..	100	5.93	12.81	11.41	6.33	5.35	9.06	118.71
Hakalau..	200	8.14	17.28	14.50	8.75	9.35	11.20	149.86
Laupahoehoe..	500	2.63	16.08	20.40	11.92	5.85	11.06	136.31
Ookala..	400	2.98	11.95	15.94	13.41	3.69	9.44	111.68
Kukaiau..	250	2.81	10.34	13.60	9.81	2.34	4.40	89.40
Paaupau Mill..	300	3.02	9.62	9.45	6.79	1.87	2.40	73.17
Honokaa..	470	2.89	8.71	9.17	5.39	1.48	2.32	69.82
Kamuela..	2720	1.28	3.87	2.67	2.00	2.03	2.61	43.66
Kohala Mission..	521	3.63	9.48	5.26	4.12	2.18	3.80	64.67
Holualoa..	1350	5.07	3.79	4.23	5.17	4.69	10.40	69.71
Kealahou..	1580	6.75	6.36	4.24	2.62	5.56	12.23	77.69
Naalehu..	650	9.94	7.22	4.53	1.44	2.00	4.25	58.90
Pahala..	850	12.30	4.61	3.47	1.01	1.75	0.50	55.08
Kilauea Crater..	4000	8.97	10.90	12.50	5.65	4.10	5.40	91.27
Puna Plantation..	600	9.69	15.20	13.54	7.02	4.25	11.91	.....
Kapoho..	110	9.31	12.73	9.91	4.09	3.23	7.59	99.58
MAUI								
Haleakala Ranch..	2000	5.39	9.08	2.72	6.04	3.35	0.29	85.97
Pu'uomalei..	1400	3.32	6.12	6.67	8.85	1.63	1.75	78.89
Makawao..	1700	9.23	11.80	5.66	9.12	3.57	0.45	123.78
Erehwon..	4000	5.45	7.30	.00	2.59	5.29	1.71	45.78
Haiku..	700	4.24	6.06	6.75	6.83	1.80	3.33	78.65
Kipahulu.. . . . .	.....	.....	.....	.....	.....	.....	.....	.....
Nahiku (lower)..	850	18.30	16.07	15.71	19.85	4.12	13.87	197.99
Wailuku..	250	13.45	8.68	1.75	1.53	0.37	0.18	43.33
OAHU								
U. S. W'th'r B're'u..	108	12.44	5.87	2.14	0.64	0.67	0.49	42.05
Kewalo-uka..	350	12.27	7.50	4.99	1.51	1.92	2.21	65.79
Kinaiu Street..	50	11.40	7.26	2.32	0.54	0.97	0.40	46.77
Woodlawn Dairy..	285	14.78	5.98	8.91	2.65	2.91	4.14	108.03
Kalihi Valley..	485	26.92	.....	9.61	3.36	.....	.....	.....
Nuuanu Avenue..	50	12.58	6.91	4.42	1.23	1.49	1.26	58.38
Nuuanu Elec. St'n..	405	10.16	8.76	4.59	2.00	2.08	5.71	76.08
Nuuanu Wat'r W's..	850	16.92	13.74	14.68	8.29	9.90	14.15	158.61
Waimanalo..	25	22.25	7.07	2.83	2.37	9.98	1.38	73.34
Maunawili..	250	25.74	14.83	5.73	5.17	16.78	6.87	119.06
Ahuimanu..	350	32.27	10.43	4.82	3.29	14.93	5.09	128.19
Kahuku..	25	10.79	5.34	4.20	2.17	2.09	2.99	51.49
Ewa..	50	13.77	4.29	2.38	0.04	3.04	0.31	40.66
Wahiawa..	870	16.13	11.01	7.08	1.31	4.53	1.80	77.42
Waiawa..	675	14.19	6.90	4.67	2.10	1.89	2.60	62.73
KAUAI								
Lihue..	200	23.30	5.71	10.96	2.02	5.79	2.24	79.84
Kealia..	15	15.69	5.20	7.56	1.83	5.18	1.70	57.12
Kilauea..	342	26.28	3.70	16.68	1.60	10.40	5.13	85.89
Hanalei..	10	25.88	5.89	24.25	2.12	9.33	9.74	116.74
Elele..	150	18.95	2.95	10.29	0.57	1.74	1.37	47.16
Koloa..	100	23.06	5.78	14.21	2.08	2.29	2.46	83.17

TABLE OF ANNUAL LICENSE FEES.

Territory of Hawaii.

<i>Alcohol</i>	\$ 50.00	<i>Hotel and Restaurant</i>	50.00
<i>Awa</i> —Honolulu	500.00	<i>Insurance Agent</i>	2.00
Hilo, Waluku or La-haina	100.00	<i>Kerosene Storage</i>	200.00
All other	50.00	<i>Lodging and Tenement House</i>	2.00
<i>Auction</i> —Honolulu	600.00	<i>Laundry</i>	25.00
All other	15.00	<i>Livery Stable</i> —Honolulu	50.00
<i>Banking</i> —Honolulu	750.00	All other	25.00
Hilo	500.00	<i>Liquor</i> —1st class, wholesale..	1000.00
All other	250.00	2nd class, retail saloon or hotel	750.00
<i>Billiard</i> —each table	25.00	Restaurant	500.00
<i>Bowling Alley</i> —each alley... ..	25.00	For premises outside 5 mile radius from 1st to 3d class postoffice..	250.00
<i>Beef Butcher</i> —"Slaughter and Sell," Honolulu	100.00	3rd class, not over 3 days, per day	15.00
All other	20.00	4th class—wine	5.00
<i>Beef Butcher</i> —"Sell"	10.00	5th class—manufacturing..	5.00
<i>Boat</i> —With 4 or more oars.. ..	8.00	<i>Milk</i>	2.50
With less than 4 oars... ..	4.00	<i>Merchandise</i>	25.00
<i>Boatman</i>	1.00	— Broker	100.00
<i>Barber</i>	10.00	— Peddler	50.00
<i>Brewery</i>	250.00	<i>Notary Public</i> —Honolulu ...	10.00
<i>Certificate of Authority</i>	10.00	All other	5.00
<i>Car License Tax</i> —per car... ..	10.00	<i>Pork Butcher</i> —"Sell"	10.00
<i>Custom House Broker</i>	50.00	— "Slaughter and Sell," Honolulu	40.00
<i>Collection Agency</i>	25.00	All other	20.00
<i>Dray, Wagon, etc.</i>	2.50	<i>Peddling Cake</i>	25.00
<i>Driver</i>	1.00	<i>Pawnbroker</i>	50.00
<i>Dyeing or Cleaning, etc.</i>	25.00	<i>Public Show</i> —per show.....	5.00
<i>Emigrant Agent</i>	500.00	<i>Poisonous Drug</i>	50.00
<i>Employment Agency</i>	25.00	<i>Second Hand Dealer, etc.</i>	25.00
<i>Foreign Corporation</i>	300.00	<i>Stock and Share</i>	100.00
<i>Farrier and Horse-shoer</i>	5.00	<i>Steam Laundry</i>	50.00
<i>Fishing Boat</i>	5.00	<i>Social Club Tax</i>	200.00
<i>Garage</i> —Honolulu	50.00		
All other	25.00		
<i>Hack and Passenger Vehicle</i> —per passenger	1.00		

Seating capacity of principal Churches, Halls and Places of Amusement—Honolulu.

Roman Catholic Cathedral, Fort street	1,500
Kawaiahao Church (Native), King street	1,000
Central Union Church, Beretania street	850
St. Andrew's Cathedral (Episcopal), Emma street	800
Progress Hall, corner Fort and Beretania streets	500
Hawaiian Opera House, King street	1,000
The Orpheum, Fort street	945
Y. M. C. Association Hall, Hotel street	250

NOTABLE TRIPS OF PACIFIC OCEAN STEAMERS.

TRIP.	MILES.	STEAMER.	DATE.	D.	H.	M.
San Francisco to Honolulu,	2100	China	Aug., 1899	5	9	55
" " "	2100	Korea	Jan. 1903	4	22	15
" " "	2100	Siberia	Aug., 1905	4	19	20*
Honolulu to San Francisco,	2100	Mariposa	May, 1898	5	22	0
" " "	2100	China	Nov., 1902	5	2	16*
" " "	2100	Nippon Maru	Jan., 1900	5	2	21
San Francisco to Yokohama,	4764	China	Oct., 1903	9	4	17*
Yokohama to San Francisco,	4537	Korea	Sept., 1905	10	11	0
" " "	4537	Siberia	Oct., 1905	10	10	28*
Yokohama to Honolulu,	3400	China	Dec., 1897	8	6	15*
" " "	3400	Coptic	Feb. 1902	9	2	17
San Francisco to Sydney,	7297	Alameda	Dec., 1895	21	10	0*
Auckland to Sydney,	1286	Sonoma	Jan., 1902	3	8	40*
Auckland to Honolulu,	3810	Mariposa	April, 1882	11	10	0*
" " "	3810	Alameda	July, 1897	11	10	35
Sydney to Auckland,	1286	Zealandia	Dec., 1890	3	20	51*
Honolulu to Samoa,	2279	Mariposa	Jan., 1886	6	7	45
" " Victoria,	2342	Warrimoo	July, 1896	6	22	19
" " "	2342	Manuka	June, 1904	6	14	50*
Victoria to Honolulu,	2360	Warrimoo	Jan., 1896	7	1	9
" " "	2360	Maheno	Aug., 1906	6	12	0*
Vancouver to Sydney,	6999	Warrimoo	Nov., 1895	20	15	17*
Honolulu to Sydney,	4865	Manuka	July, 1904	13	16	55†
Sydney to Honolulu,	—	Miowera	Aug., 1906	14	0	30
" " "	4865	Manuka	July, 1905	14	17	12†
" " "	4865	Maheno	April, 1906	13	22	50†*
Sydney to Vancouver,	6670	Warrimoo	April, 1896	21	4	23*

* Best record trips.

† Including all stops.

Clipper Passages between Coast and Island Ports.

- 1852—Ship Challenge, 8 days from San Francisco to Honolulu.
 1859—Ship Black Hawk, 9 days and 9 hours from San Francisco.
 1861—Ship Fair Wind, 8 days and 17½ hours from San Francisco.
 1861—Bark Comet, 10 days 19 hours from Honolulu to San Francisco.
 1862—Ship Storm King, 9 days and 9 hours from San Francisco.
 1863—Bark Yankee, 9 days 13 hours from San Francisco to Honolulu.
 1879—Schooner Claus Spreckels, 9½ days from San Francisco to Kahului.
 1880—Schooner Jessie Nickerson, 10 days from Honolulu to Humboldt.
 1881—Brgtne. W. G. Irwin, 8 days and 17 hours from S. F. to Kahului.
 1884—Schooner Emma Claudina, 9 days and 20 hours from Hilo to S. F.
 1884—Schooner Rosario, 10 days from Kahului to San Francisco.
 1884—Brgtne. Consuelo, 10 days from Honolulu to San Francisco.
 1886—Bark Hesper, 9½ days from Honolulu to Cape Flattery.
 1893—Bktne. Irmgard, 9 days and 16 hours from San Francisco.
 1893—Bktne. S. G. Wilder, 9 days and 14 hours from San Francisco.
 1898—Bark Rhoderic Dhu, 9½ days from Hilo to San Francisco.
 1898—Ship S. P. Hitchcock, 9 days 7 hours from San Francisco.
 1898—Bark S. C. Allen, 9½ days from San Francisco.
 1902—Bktne. Lahaina, 12½ days from Eleele, Kauai, to Portland, Ore.
 1903—Bark Annie Johnson, 8 days and 18 hours from San Francisco.
 1905—Bark R. P. Rithet, 8 days from Honolulu to San Fran. (in March).

RECORD TRIPS BETWEEN HAWAIIAN AND DISTANT PORTS.

To or from Honolulu unless otherwise stated.

- 1846—Am. schr. Kamehameha III, 116 days from Boston.
- 1852—Am. sh. R. B. Forbes, 99 days from Boston.
- 1853—Am. sh. R. B. Forbes, 17 days to Hongkong.
- 1853—Am. sh. Sovereign of the Seas, 83 days to New York.
- 1853—Rus. wh. bk. Suomi, 13 days from Sitka.
- 1854—Am. sh. Golden Fleece, 100 days to New Bedford.
- 1854—Am. sh. Skylark, 104 days to New Bedford.
- 1854—Am. sh. N. B. Palmer, 81 days to New York.
- 1854—Am. schr. Lady Jane, 26 days from Callao.
- 1854—Am. schr. Sovereign (Ka Moi), 120 days from New London.
- 1854—Am. sh. Shooting Star, 83 days to New London.
- 1857—Br. sh. Kamehameha IV, 116 days from Liverpool.
- 1858—Am. sh. John Land, 97 days to New Bedford.
- 1858—Am. brg. Josephine, 103 days from New York.
- 1858—Am. schr. Vaquero, 96 days from Melbourne.
- 1859—Am. brg. Josephine, 6 days 13 hours to Jarvis Island.
- 1859—Am. brg. Josephine, 8 days 14 hours from Jarvis Island.
- 1859—Am. sh. Ella & Eliza, 14 days from Puget Sound.
- 1860—Am. bk. Behring, 89½ days to New Bedford.
- 1860—Am. schr. Nettie Merrill, 118 days from New York.
- 1860—Am. sh. E. F. Willetts, 89½ days from Lahaina to New Bedford.
- 1863—Br. sh. Jasper, 13 days from Victoria, B. C.
- 1864—Am. sh. Dreadnaught, 82 days to New Bedford.
- 1865—Haw. bk. R. W. Wood, 113 days from Bremen.
- 1865—Br. sh. Golden West, 32 days from Hongkong.
- 1866—Br. sh. Sailor's Home, 29 days 18 hours from Shanghai.
- 1867—Am. brg. Hesperian, 13 days from Tahiti.
- 1868—Am. brg. Morning Star, 11½ days from Marquesas.
- 1868—Am. sh. Syren, 105 days from Boston.
- 1868—Haw. bk. R. C. Wyllie, 115 days from Bremen; also in 1874.
- 1869—Am. sh. Lorenzo, 19½ days from Yokohama.
- 1871—Haw. bk. Ka Moi, 107 days from London.
- 1871—Am. bk. Agate, 34 days from Newcastle.
- 1873—Am. sh. Puritan, 16 days from Portland, Ore.
- 1875—Am. bktn. Jane A. Falkenberg, 13½ days from Astoria.
- 1875—Am. bktn. Jane A. Falkenberg, 16 days from Portland, and again in 1878.
- 1878—Am. bk. J. W. Seaver, 33 days from Newcastle via Tahiti.
- 1878—H. I. M. S. Cristoforo Colombo, 12 days from Tahiti.
- 1878—Br. bk. Glencoe, 123 days from Glasgow.
- 1878—Br. sh. Benlidi, 99 days from London.
- 1878—Br. sh. City of Perth, 115 days from Liverpool.
- 1879—Br. bk. Lalla Rookh, 122 days from Glasgow.
- 1880—Haw. schr. Kauikeaouli, 13 days 17 hours from Port Townsend.
- 1881—Nor. bk. Beta, 113 days from Drammen to Maalaea Bay, Maui.
- 1881—Br. bk. Oberon, 109 days from Liverpool.
- 1893—Am. bk. Amy Turner, 109 days from New York.
- 1895—Am. bk. Fresno, 14 days 10 hours from Port Townsend.

- 1896—Am. sh. Henry B. Hyde, 102 days from New York.
 1898—Am. bktn. Otterspool, 109 days from Liverpool.
 1899—Ger. sh. Marie Hackfeld, 105 days from Hamburg.
 1901—Haw. bk. Foohing Suey, 106 days from New York.
 1902—Am. sh. Erskine M. Phelps, 97 days from Norfolk, Va.
 1905—Ger. sh. Herzogin Sophia Charlotte, 107 days from Bremen.
 1905—Ger. sh. Herzogin Sophia Charlotte, 27 days to Sydney.
 1905—Am. sh. John Ena, 22 days 22 hours from Shanghai to Hilo.
 1906—Br. sh. Star of Bengal, 33 days from Newcastle.
 1906—Am. sh. John Ena, 99 days to Delaware Breakwater from Hilo.
 1907—Am. sh. Erskine M. Phelps, 101 days to Delaware Breakwater.
 1907—Ger. sh. Herzogin Cecilie, 107 days from Leith.

SOME NOTED INTER-ISLAND TRIPS.

- 1858—Haw. schr. Maria, 12 hours from Honolulu to Lahaina.
 1857—Haw. schr. Ka Moi, 8 hours from Lahaina to Honolulu.
 1857—Haw. sch. Liholiho, 11 hours from Kohala Pt. to Honolulu.
 1858—Haw. schr. Mary, 17 hours from Kawaihae to Honolulu.
 1866—Haw. schr. Alberni, 18 hours from Hilo to Honolulu.
 —Am. wh. sh. Josephine, 17 hours from Hilo to Honolulu.
 1868—Haw. schr. Maria, 32 hours from Hono. to Hilo (in light wind).
 1869—Haw. schr. Pauahi, 24 hrs. from Hilo to Honolulu (wharf to wharf).
 1862—Haw. schr. Nettie Merrill, 7 hours 10 min. from Lahaina to Honolulu.
 1860—Haw. schr. Nettie Merrill, 11 hours from Honolulu to Lahaina.
 1881—Am. schr. Claus Spreckels, 7 hours from Kahului to Honolulu.

Arrivals and Departures of Aliens, Honolulu, for Fiscal Year Ending June 30, 1907.

Nationality.	Arrivals.	Departures. (Estimated)
Japanese	20,796	9,076
Chinese	11	960
Korean	9	586
Spanish	2,251	580
Portuguese	1,328	235
All others	70	.....
Total	24,465	10,857

Estimated Japanese Population, June 30, 1907.

Estimate July 1, 1906, as per last ANNUAL.....	62,870
Excess of arrivals over departures to June 30, 1907.....	11,720
Total	74,590

HEIAUS AND HEIAU SITES THROUGHOUT THE HAWAIIAN ISLANDS.

OMITTING KOA'S, OR PLACES OF OFFERING TO KUULA.

(Continued from last issue.)

ISLAND OF HAWAII.

[In the compilation of this list I gratefully acknowledge the courtesy of Dr. W. T. Brigham and Mr. J. F. Stokes, of the Bishop Museum staff, for the use of the latter's notes through several districts, gathered in his recent tour of Hawaii, on this special quest. T. G. T.]

DISTRICT OF PUNA.

Names.	Location and Remarks.
Wahaula.....	Pulama.—The first constructed temple of Paaō, built, according to tradition, in the 11th century; rebuilt by Imaikalani, and later by Kalandiopuu who dedicated it to Kukailimoku. A walled structure of luakini class, 132x72 ft. in size; stands practically N. E. and S. W.; its walls still 8 to 10 ft. high. The last of the temples to give up its heathen worship upon the overthrow of idolatry in 1819. It is still one of the best conditioned heiaus in all the islands. See "Tales from the Temples" and plan.
Makaiwa.....	Pulama.—A small heiau, paved, of ipu olono class; its walls now fallen.
Waiaka.....	Kahaualea.—A small heiau 85 ft. long by 44 ft. wide on its upper end and 36 ft. on the lower end; near the cave of Luamakini, whose makai entrance is said to be in the adjacent pond of Waikupanaha. Class uncertain.
Makaoiki.....	Kahaualea.—A medium sized heiau now all destroyed; its stones taken for graves, of which a number adjoins its site on the east side.
Punaluu.....	Near spring of same name, in Kahaualea. A medium sized heiau 119x37 ft. with walls 3 to 5 ft. thick, of heavy lava slabs. Its south end wall is 17 ft. thick, standing 3 ft. above main floor, well leveled off with shore pebbles. Badly shattered by earthquake. Parts of walls yet standing are 4 to 8 ft. high, according to slope of the land.

- Niukukahi.....Kalapana.—One of the noted Puna heiaus, of which Kapihe was priest and Kuahailo its deity. Of pookanaka class. It is in a thick grove of coconut, breadfruit and other trees; its foundations and parts of walls still to be seen though in a jungle of undergrowth; said to be 150 ft. square.
- Napalua.....Near Waiokolea, Kalapana, a walled heiau about 80x100 ft. in size, said to have been under Kapihe's jurisdiction. Its walls were thrown down by the earthquake of 1868.
- Kikoa.....Kalapana, a small sized heiau of which little could be ascertained.
- Kumakaula.....Kaimu, a medium sized heiau of unknown class, a part of which only now remains. It was an ancient temple of the "truncated pyramidal" type, but destroyed in the fifties by one Kahuluhulu and his father, for their house site. In early years the tide came up to its base, and at its front was the noted place for akule. It is now one-eighth mile from the sea, the main road running by it, though this coast line for quite a distance subsided in 1868.
- Mahinaakaka.....Keahialaka, near Pohoiki, a platform heiau 41x75 ft. built up six ft. high on sea side of the road, standing practically east and west. Its north wall shows double construction for about half its height nearly the whole length, and the eastern end rounded out some ten or more feet, not quite the height of the main structure, but whether a feature for its ceremonies, or a protection from the sea, could not be determined. Its walls and floor in a much disturbed condition.
- Oolo.....Pohoiki, said to have been an important heiau; now entirely destroyed.
- Kalepa.....Or Kalelepa, near Kamaili, a heiau of the time of Keawemauhili, dedicated to Ku and Lono: of large size. Noted by Ellis as the probable Puna heiau where Cook's bones were deposited and worshipped. Almost wholly destroyed; its stones taken for roads.
- Kue.....At Kehena. Nothing left to mark its site.
- Aliipalala.....Kamaili, a small heiau of ipu olono class said to have had connection with Wahaula (listed below.) Entirely destroyed.
- Wahaula.....Kamaili. A reported very large heiau of ancient time; nothing now remains but a portion of its smooth pebbled floor. The Kamaili people claim that part of the well known heiau.

- of same name, at Pulama, was built with stones from this temple, hence its name Waha-
haua.
- Pulena..... Keekee. No particulars gathered; now in ruins in a tangle of bushes.
- Kukii..... On hill of same name, at Kapoho, 67x120 ft., built by Umi of lava blocks, or slabs, well fitted. Now in ruins; portions of walls only remaining. Some of its stones were brought down by Kalakaua, in 1879, which went into the foundation walls of the palace.
- Oalalauo..... Kilauea-iki: on summit of precipice; temple of Pele, Kamakaakeakua its priest. In ruins in 1825.

DISTRICT OF HILO.

- Kapaieie..... Near Honokawailani, Waiakea, famed in the Hilo-Puna wars. In existence at time of Byron's visit in the "Blonde." Size and class uncertain. Its ruins still to be seen.
- Makaoku..... On the shore opposite Cocoanut Island, Hilo, of luakini class, connected with the noted Mo-kuola place of refuge; dimensions unknown, though it is said to have had a high pyramid of stone as if for a place of observation. The stones of this heiau were taken by Capt. Spencer in the sixties for a boat landing.
- Ohele..... Site above the old Pitman store, at Waiakea; a small heiau of luakini class, about 60 ft. square: destroyed before Pitman's time.
- Kaipalaoa..... Near armory site, Hilo: of pookanaka class; the heiau at which Umi's life was threatened, and the place where Kamehameha I is said to have proclaimed his "Mamalahoa" law. Destroyed in the time of Kuakini's governorship of Hawaii.
- Kanowa, or Kanoa..... Puueo, site of L. Severance's house; of medium size, about 80x60 ft., consecrated by Kalani-opuu to his war god; Luupule its priest. Its walls were thrown down prior to 1853, and entirely destroyed for roads in 1898.
- Kahinihiniula..... Punahoa, a small heiau of ipu olono class, long since destroyed.
- Kiniakua..... Near Waikapu Spring; a small heiau of hooulu ai class, now entirely destroyed.
- Papio..... Piihonua, back in the forest; a heiau for canoe builders and bird catchers.
- Onomea, a good sized heiau, about 100 ft. square, class unknown; long ago in ruins, now in cane field above the road.

- Naipule.....Pepeekeo, a large heiau of traditional menehune construction, located on the Hilo side of Makahanaloa hills, above present cane fields: of pookanaka class.
- Kamao.....Laupahoehoe, nothing now remains.
- Papaulekii.....Laupahoehoe, site of present court house.
- Lonopuha.....Laupahoehoe, site near present light house.
- Moiapuhi.....Kiilau, old Laupahoehoe mill site; destroyed in 1876 when the mill was built.
- Mamala.....Haakoa, on a bluff above Laupahoehoe village; a walled heiau 160x130 ft., class unknown; used for years past as a slaughtering pen.
-Waipunalei. At this heiau Umi sacrificed Paiea whom he had caused to be slain on coming to power, about 1490.

DISTRICT OF HAMAKUA.

- Manini.....At Koholalele; a large heiau consecrated by Liloa after reconstruction about 1460, on which occasion Laeanui was the officiating high priest and twenty-four victims were sacrificed on its altar. Kaoleioku was its priest in the time of Umi.
- Ka Loa.....Honokaa, a heiau of about 100x70 ft. in ruins and overgrown; wider at west end, with a wide platform feature along its makai side.
- Wawaemakilo.....Honokaa, near bluff: nothing now remains.
- Kalelemauli.....Kukuihaele; site found, nothing remains.
- Pukiohuaka.....Kukuihaele; site found, nothing remains.
- Kaiponihua.....At Ke-a, between Kukuihaele and Kapulena; not identified.
- Punanamoa.....Waikoekoe; not identified.
- Hauola.....At a place of same name, not identified; said to have been an ancient puuhonua.
- Pakaalana.....Waipio valley; built before the time of Kiha (1415). The famous place of refuge of windward Hawaii; destroyed by the King of Kauai about 1790. A heiau of most sacred kapus; Lono was its deity. (See Tales from the Temples.)
- Moaula.....Waipio; repaired and consecrated by Kalaniopuu about 1770, and dedicated to his war god after proclaiming Kiwalao as his heir, and assigning to Kamehameha the care of the priesthood and his war god Kaili.
- Honuaula.....Waipio, the place of sacrifice of Hakau and companions by Umi. Nothing of these Waipio heiaus remain, nor has any mention of their size been met with.

- Hokuwelowelo.....Waipio; remains of alleged small heiau, site of a trig. station. One of this name is claimed for Kukuihaele, nothing of which remains.
- Helehiwa.....Waimanu valley; an alleged heiau; not identified.
- Kaapeape.....Waimanu; a medium sized platform heiau on Waipio side of the valley. Houses now occupy its site.
- Mokini.....Waimanu: not identified.

DISTRICT OF KOHALA.

- Uli.....Waimea; size and class unknown; dedicated by Hakau; rebuilt by Kamehameha, its images and steps repaired. Coconuts for its consecration were brought from Puako, 12 miles distant. A low mound only remains to indicate its site, opposite the church premises.
- Puuomanea.....Honokane, an alleged heiau and puukaua of small size.
- Hoolonopahu.....Pololu valley, a small heiau of time prior to Kamehameha, near east side, not far from the shore. All destroyed.
- Kuapalaha.....Makapala; a walled heiau 135 ft. on one side and end by 127 and 112 ft. on the others, its walls now four ft. high and from six to ten ft. thick: class unknown.
- Kapalama.....Halawa, near the sea cliffs; a platform heiau about 240x260 ft., the whole area well paved with small stones. Class unknown.
- Hale-o-Kaili.....At Hapuu, Halawa; a small heiau of platform character, 80x60 ft. Said by Ellis to be the family heiau of Kamehameha I, but of strict kapus and pookanaka class.
- Ohau.....At Halelua, a small heiau about 45x50 ft. in size: its walls 12 to 14 ft. high, some 14 ft. thick at the base and six at the top. Supposed to have been of luakini class. Demolished in 1902.
- Muleiula.....Halelua, eastward of present Light House; a small heiau said to have been built by King Hua, of Maui, in one of his raids, and later appears in list of several consecrated by Lono. Destroyed early in the sixties.
- Palapalahoomau.....At Naohaku, in the bottom of the ravine below the Kohala mill pumping station: now in ruins, indicating a size of about 26x56 ft. overgrown with lantana; class unknown.
- Pahauna.....Lamaloloa. Known only from tradition: not identified.

- Mookini.....At Puuepa, a large heiau of pookanaka class, of 250 ft. in length on east side and 130 ft. wide at north end; of heavy substantial walls, credited as the second temple erected by Paa'o. (See Tales from the Temples.) Its walls are yet in fair condition, but its internal divisions were doubtless changed in the fifties when the area was devoted to tobacco culture.
- Puukohola.....Kawaihae, a large heiau of pookanaka class 224x100 ft. in size, walled on the ends and mauka side; its seaward side open and terraced: Consecrated by Lono about 1580; rebuilt by Kamehameha I, about 1791, and dedicated to his war god Kaili, and the place of sacrifice of Keoua.
- Mailekini.....Kawaihae, situate a short distance below Puukohola, 270x65 ft. in size; class unknown. Its front is a low perpendicular wall; the mauka one much heavier and sloping. Internal features all gone; the interior now occupied by graves.

KONA HEIAUS.

- Ahuena.....Kailua. This was an ancient heiau of, or prior to the time of Liloa, 150x120 ft. in size, and the first one to have been repaired by Kamehameha I; changed to a fort by Govr. Kuakini about 1820. Time of its entire demolition not learned. It stood near site of present light house.
- Hiiaka.....Kailua. Particulars not ascertained. Its site is now occupied by a saloon.
- Keikipuipui.....At Keopu 3, near old palace; 100x80 ft. in size, of pookanaka class, built likely in the time of Umi; repaired by Kalaniopuu during his war with Kahekili. Holoae its priest. Demolished to furnish stones to build the first church on Hawaii.
- Haleoku.....At Auhaukea 2; not identified.
- Kalopau.....At Puua 1; but little remains of this heiau; no facts learned.
- Mao.....Waiaha; a small heiau, now in a tumbled down condition, the road—which has cut into it—runs along its mauka side. The inner division shows a series of holes in its platform, said to have been where rain was cooked.
- Kauaikahaola.....Puapua 1; an early heiau, rebuilt by Kamehameha; about 170x75 ft. in size, of two divisions. Its walls yet in fair condition; entry way on seaward side.
- Halehau.....Holualoa 1; a walled structure 85x50 ft., its interior having two levels, the higher (two ft.) being paved along its upper side and south

- end; the latter entering by a passage to a division ten ft. wide.
- Hikapāia.....Holualoa 3, a large heiau of very irregular form 190x130 ft. in size, with six divisions, the two main ones paved; other portions given over to cultivation. Walls in fair condition.
- Haulelani.....Holualoa 4; (probably the Pakiha of Ellis) some 225x195 ft. in size, its outer walls being high and solid and still in fair order. No particular inside feature remains, being given over to cultivation. (See Tales of the Temples.)
- Kanekaheilani.....Holualoa; a heiau of two divisions, 135x80 ft., at a point on the sea shore. Entrance at east end; the inner division having a pond of brackish water credited by Ellis as the sacred bathing pool of Kamehameha. This heiau is now known as Keolonahihi: its walls are of ordinary height and in fair condition.
- Haleaama.....Holualoa; but a fragment remains; 85 ft. in length.
- Haleokekupa.....Holualoa; located, but not identified as a heiau.
.....Pahoehoe; a reported large heiau, not found.
- Haukalua.....Laaloa, a heiau of 100x75 ft., little of which now remains.
- Kalaemano.....Laaloa, located as a present house lot.
- Keawemua.....Kapalaalaea, an alleged heiau, portions of its foundation walls only remain. Said to have been the residence of Konia (Mrs. Paki).
- Lahae.....Kahaluu; small portion only remains; about 60x40 ft. in size.
- Kuemanu.....Kahaluu; a prominent place by the road, on which opinion differs as to the claim of being the site of a heiau.
- Haleokane.....Kahaluu; (supposed to be the Halekumukalani of ancient time), an oblong heiau of three divisions; size 185x65 ft. heavily overgrown; an enclosure 20x25 is a feature of the upper division with entrance from the central one. Heavy mauka end wall.
- Halelaau.....Kahaluu, a medium sized heiau about 100x60 ft. of two levels, in fair condition.
- Kapuanoni.....Kahaluu; located; little now remaining.
- Hanakalawai.....Kahaluu, nothing left of this heiau.
- Hapaialii.....Kahaluu; a large heiau said to have been built by Kamehameha about 1782 after the battle of Mokuohai. Hewahewa its priest. Constructed of large stones part on pahoe hoe and part on sand. But one corner of it, close to the shore, remains.

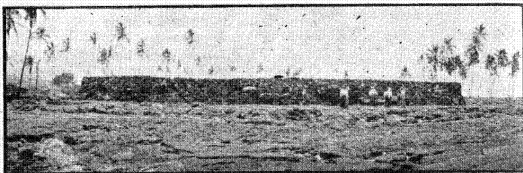
- Kamaikeeku.....Kahaluu, also credited to Kamehameha as its builder; of heavy, high walls, and large size. Its ruins now measure 170x130 ft., the northern end some 40 ft. wide being of platform character. Except indications of four house plats along the eastern side all its internal divisions have been removed. A lone tall Hawaiian palm, and many coconut trees, are growing within its walls.
- (Now known as Keeku)
- Paoumi.....Kahaluu, of about 100x85 ft. in size: its once heavy walls being now in a badly tumbled down state.
- Makole-a.....Kahaluu, a medium sized heiau, 97x60 ft., of Lonoikamakahiki's consecration, still in fair condition: its outer walls thick, five ft. high, and a low inner wall running lengthwise forms it into two divisions.
- Kaioena.....Probably same as formerly called Keahiolo, at the boundary of Kahaluu and Keauhou. Little remains to indicate its size, or character.
- Opukaha.....Keauhou; not yet identified.
- Kamauai.....Keauhou, an alleged ancient heiau (whose site is now a house lot), ascribed to Kane himself and connected, traditionally, with the introduction and propagation of vegetables in these islands.
- Ohiamukumuku.....Kahaluu. Traditionally said to have been built by the gods, 150x120 ft. in size. Repaired by Kalaniopuu, at which time Holoae was its priest. It was lastly repaired by Kamehameha. Nothing now remains of it; its stones went into church structures.
- Hookuku.....Keauhou 2: an alleged heiau but probably only a famous sacred locality; the birth place of Kanikeaouli (Kamehameha III).
- Kualanui.....Honalo, a heiau 145x65 ft. with platform feature at its southern end. Walls in fair condition.
- Maili.....Maihi 1; 120x145 ft. in size; its walls in fair condition, but all internal divisions gone.
- Kekuakalani.....Maihi 2, (thought to be identical with Kaluaokalani). Its site only remains; now used as a place for drying fish nets.
- Lonohelomoa.....Kuamoo 1; a T-shaped platform heiau, about 45x45 ft. with several internal divisions of various heights. No particulars obtainable.
- Puoa.....Kawanui 1; a small heiau, in fair condition.
- Ukanipo.....Lehuula: a small heiau 45x60 ft., of high thick walls, a low platform 20x30 ft. running along its rear wall; entrance at center of west side.
- Pahukapu.....Hokukano 1. Site found; nothing of it remains.
- Hoopalahululi.....Hokukano 1: a platform heiau 135x45 ft. in its

- widest part; a section at each end being smaller.
- Hopupalali..... Kaawaloa; a heiau of luakini class, 80x60 ft. in size; traces of which only now remain.
- Waaomalama..... Kaawaloa, north of "Puhinaolono," the sacred place where Cook's body was said to have been burned; probably not a regular heiau.
- Hikiau..... Kalama, Kealakekua, a truncated pyramidal heiau of very ancient time, 190x105 ft. in size, its front or seaward wall built up some 15 ft.; well paved; of two divisions. Noted as the temple where Capt. Cook participated in its ceremonies with Koa, the high priest. Its walls are fallen, and its area for years past has been residence property.
- Helehelekalani..... Situate not far from the above; said to be the temple where Opukahaia was being trained for the priesthood by Lepeamoa his uncle. A small insignificant platform heiau 25x35 ft. in size, now in ruins.
- Kamaiko..... Keei 2; a platform heiau 200x120 ft. in size, the south and makai end gone; the upper part in fair order, showing two or three inner divisions.
- Kaaia or Kaieie..... Keei 2, some distance inland of the above; about 150x50 ft. in size, now in a crumbled condition in a tangle of lantana.
- Alealea..... Honaunau, the prominent heiau in the famous city of refuge, a solid mass of stones ten ft. high, 128x64 ft. in size. The walls of the enclosure runs 715x404 ft.; are 15 ft. thick and stand 12 ft. high.
- Akahipapa..... Is a small heiau in the same refuge enclosure, termed "Heiau no na Wahine" (women's heiau), 24x28 ft. No other such has been met with throughout the islands.
- Hahapo..... Kealia, a walled heiau 100x60 ft. a low platform 6 ft. wide running along one end: walls good; traces of paving.
- Koa..... Waiea, claimed to be a heiau, 30 ft. square; a small platform in good condition.
- Hekilini..... Kalahiki, a large heiau of four terraces, built before the time of Keawe. Traces of it only now to be seen.
- Kahauwawaka..... Kalahiki, above the road; built in Keawe's time. 150x120 ft. in size. Kamohoalii its priest. Portions of its walls only now remain.

DISTRICT OF KAU.

- Kaneikaupoku..... Manoka; not identified.
- Malino..... Kahuku near Pakini; not identified.
- Kalalea..... Kalae; the famous fishermen's Kuula of South Point, 45x35 ft. in size.

- Milolele.....Near South Point, 115x50 ft. in size; now in ruins.
Kiolakaa, an alleged heiau with walls somewhat
 diamond shaped, 65x75 ft. in size, two plat-
 forms being in opposite corners.
 Malulani.....Kiolakaa, 130x55 ft.; wholly destroyed.
 Alainamoana.....Waiohinu, a built-up platform heiau, five to eight
 ft. from the ground; one corner broken down.
 Panee.....Waiohinu; a platform heiau; nothing now re-
 mains.
 Papamoana.....Waiohinu; site located. Nothing remains.
 Kalamakoi.....Waiohinu; a low platform heiau somewhat L
 shaped; its lines still distinct.
 Paokua.....Kahea, an alleged heiau of small size, part walled
 and part platform, quite dilapidated.
 Pueo or Poopueo.....Kahilipali; not found.
 Makamakaole.....Kalainakekua. No trace remains; now in cane.
 Kamalai.....Honuapo; the heiau of Ellis' mention as dedicated
 to Kaili; destroyed in 1819.
 Kohaikalani.....Makanao, Hilea; 160x80 ft. in size with well built
 walls of five to six feet high; one corner
 fallen. Its interior divisions have been remov-
 ed to permit cultivation. Of pookanaka class;
 Kahoapuaku, its priest.
 Imakakaloa.....Near Makanao, of complicated plan showing three
 divisions, one 75x50, divided in two, the other
 70x105 ft. in which was the entrance on the
 mauka side: said to have been devoted to the
 hula.
 Pakini.....Kamaoa, a war heiau built by Kalaniopuu and
 dedicated to Kukailimoku and the place of
 sacrifice of the Puna Chief Imakakaloa by
 Kamehameha: not identified.
 Keeku.....Kaioa, a heiau 190x100 ft. in size, of several divi-
 sions built 400 years ago, one platform 30x40
 outside its mauka end, and one 30 ft. square
 on its west side. Its western wall is gone but
 the others are in fair order; within are three
 platform divisions. A low wall encloses the
 whole, entered from the mauka end.
 Mokini.....Ninole; not identified.
 Lanipao.....Punaluu: an alleged heiau of medium size, traces
 of three terraces at its west end: walls in
 fair order: internal divisions gone.
 Punaluunui, Halelau....Punaluu, one 6 ft. wall running 687 ft. mauka,
 with a shorter one 240 ft. at the lower end is
 all that remains covering the area said to
 have been occupied by these two heiaus.
 Kaneelele.....Punaluu, an important ancient heiau, said to have
 had affiliation in its workings with that of
 Wahaula, in Puna.



ALEALEA HEIAU IN PLACE OF REFUGE, HONAUNAU.

TALES FROM THE TEMPLES.

PART II.

Continued from last issue of the HAWAIIAN ANNUAL, and embracing the Heiaus of the Island of Hawaii.

BY THOS. G. THRUM.

Heiaus of Puna.

NATURALLY in the study of the heiaus (temples) of the principal island of the group, Hawaii, one is led to the famous, original structure of Paoa, the high priest from "Kahiki," (believed in this case to be Samoa), who erected the same and substituted his system of heathen rites and ceremonies in these islands for what may have existed previous, and established his line of priesthood in Puna; the first heiau of his construction being that of Wahaula, at Pulama, close to the seashore bluffs; now largely hidden in a grove of hala, wiliwili and coconut trees.

Fornander, on the authority of Kamakau, states: that "in the original enclosure of the heiau of Wahaula was a sacred grove, said to contain one or more specimens of every tree growing on the Hawaiian group, a number of which, or their descendants, had survived when he visited the place in 1869."¹ He further

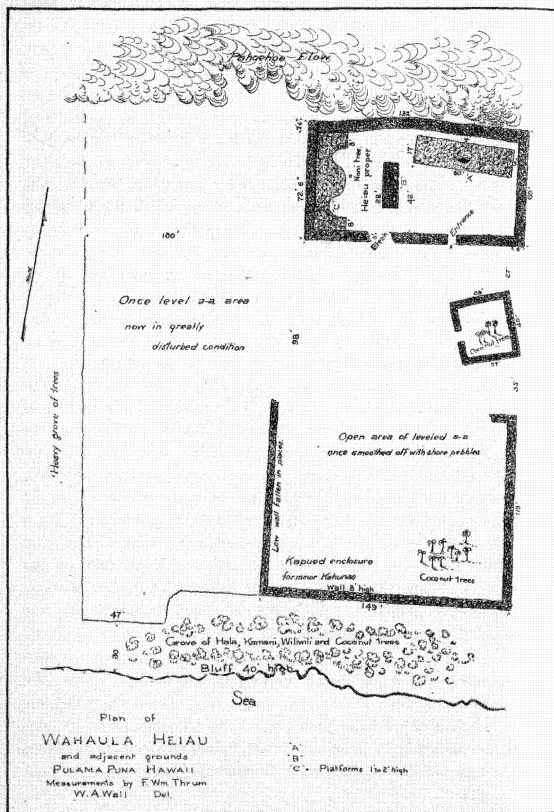
¹ Pol. Race, London, 1880, Vol. II, p. 36.

says: "It was built in the quadrangular or parallelogram form which characterized all the heiaus built under and after the religious regime introduced by Paa'o."

Tradition credits a rebuilding of this temple to Inaikalani, a famous chief of Puna, and Kau, in the time of Keawenui-a-umi, in the sixteenth century. It was repaired again in the time of Kalaniopuu, about 1770, and in the time of Kamehameha I, it had its final renovation. Ellis, in his tour of Hawaii, in 1823, states it was built by him,² but this is an error. It is not known at which of these reconstruction, or repair, periods the reduction from its original size took place, either in the temple itself or its enclosure. Its present area would not embrace the grove of trees above indicated, and a description of the heiau and its approaches as given by a visitor some forty years ago, with information from an old man, son of its high priest and who himself had been brought up within its precincts to the age of 16, mentions a change. The account is as follows, corrected as to existing measurements as per plan shown herewith: "The Heiau of Wahaula is built on an 'aa' flow, and the ascent to it is by terraces. Upon the first terrace the female members of the royal family brought their offerings which were taken by the priests. Beyond this first terrace no female was allowed to pass. Two more terraces brings one to the enclosure or temple, in the shape of a quadrangle 132 feet long, by 72 feet wide. A stone wall encloses the temple, 6 feet high and 4 feet wide. The main entrance faces the East, flanked on either side by two smaller entrances. Immediately in front of this entrance stand the remains of the old temple, which was destroyed by the 'aa' flow on which the present one stands.

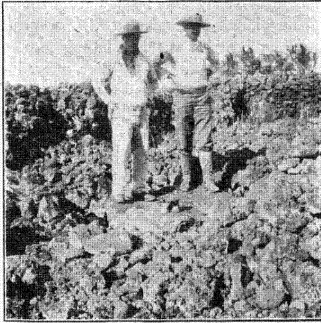
"Across the southern end extends a stone platform some 3 feet high built in the shape of two semi-circles connected by a straight platform. Between these semi-circles was placed the presiding deity, and on either hand were placed the offerings of fruits, etc., while immediately in front, on a small raised platform were placed the human sacrifices, which were always slain in the main entrance

² Tour of Hawaii, 3rd London edn., 1827, p. 265.



to the heiau. Immediately in front of this altar for human sacrifices, and extending across the enclosure, stood the priests' house, sacred to them alone. In the rear of this was the royal house, where the members of the royal family assembled during the days devoted to the sacrifices. The rest of the enclosure was paved."³

From a recent visit to this noted structure we are able to confirm much of the foregoing description, except the "two smaller entrances" mentioned. The main walls of the heiau, are still intact, excepting one break in the front wall midway between the entrance and the southeast corner (as shown on the plan), and a portion of the northern wall which is crumbling on the inside. There has been much disturbance of the more important divisions of the temple, and the large, flat, kite-shaped stone in the raised



SACRIFICIAL STONE IN WAHAULA HEIAU.

portion, where stood the house of the priests, has been broken across in an unsuccessful attempt to remove it. The walls of Wahaula are built of blocks of "aa" (or clinker lava) of the vicinity, while the divisions within, and its paving, are of the solid lava stones from elsewhere and leveled off with shore pebbles.

This use of shore pebbles is also to be seen in many parts of the area outside the temple walls, where the once leveled "aa" formed

³ Hawaiian, July 15, 1872.

its terraces and court yard. Its condition is now one of "hills and hollows," due to attempts at potato culture.

Little data new was gathered relative to its history in our visit, except the claim by a number of old natives, both through Puna, and in Hilo, that this heiau of rigid kapus and most cruel of human sacrifices had also a puuhonua, or place of refuge, in connection with it, where those having broken kapu, or in times of war, might flee to from their pursuers and escape all penalty. Opinion differed, however, as to its location, some maintaining a place called Haleokii, about a mile distant from the heiau, on the adjoining land of Kahaualea was the puuhonua of the district, while others held that the leveled area outside the walls to the southwest was the mecca. Not far distant was the location of the hale pea, or women's purification house.

Ten or more priests it is said were required in the services of this temple, and an idea of its severity may be had from the custom, as told by a grandson of one Makalaau, a *Mu*, or professional seeker of victims for its altars, that these, failing to be obtained at the time required, some of the priests were offered up. He said it was the custom of these "professionals" to go out generally in parties of three, at night, and listen outside the houses of the people for any breach of kapu, when they would rush in and seize their victim and lead or drive him to his doom.

Fornander states that it was the very last heiau that was destroyed after the tabus were abrogated by Kamehameha II in 1820.⁴

Kamakau in his account of the building of this heiau by Paaō⁵ gives its name as Ahaula, signifying sacred prayer of red (or high) order and lists it as such later,⁶ but if so we do not find when it changed. None of the people of the district were aware of this as its ancient name, and it appears to be little known, though a tradition was met with to the effect that it was originally named Halaula, from the trees of the red hala (*Pandanus*) which abounded in its vicinity, but that on the split into two factions of the Kahuna clan for supremacy therein, the defeated

⁴ Pol. Race, p. 35.

⁵ Kuokoa, Jan. 5, 1867.

⁶ Au Okoa, March 10, 1869.

party, in derision, termed them "Wahaulaula" (red mouth), from the painted red mouths of its idols, and the nick-name "Wahaula" has clung to it ever since.

The heiau of Wahaula had such sacred eminence that the smoke arising from its altars of sacrifice carried rigid tabu on land, or sea, according to the direction of the wind. In its sweep over the land it was death to anyone to pass under its shadow, nor could any canoe go out upon the water in its vicinity while the wind carried the smoke seaward, under less penalty.

Two versions of a tradition touching the prestige of this noted heiau is current on Hawaii, one of which, summarized, is as follows:

A lad from the adjoining district of Kau, in his journeyings through Puna, was caught at Puuloa and sacrificed by the priests of Wahaula and his bones thrown into the "lua iwi" (bone pit), a cavity at the shore known as Holoinaiwi, washed at times by the sea, into which the bones of human sacrifices were thrown. Upon his death, his spirit returned to Kau and narrated to his father the particulars attending his capture and sacrifice upon the altar of Wahaula, and that if he would come to Kahaualea, he could rescue his bones from the "lua iwi" into which they had been ignominiously thrown.

The father hastily set forth to secure the bones of his son that they might be properly concealed and safe from desecration as furnishing fish hooks or spear heads. At the boundary of the districts he was met by an olohe (professional wrestler), who waylaid travelers for their destruction, and a serious contest was entered upon. The father was of heavy build, and with his above average strength he proved a match for the olohe of beardless face, close cropped head and oiled body, lest a foe should obtain an opportunity for advantage in the "lua." As they fought together they backed against a high bank or precipice, the face of which cracked open by the force of their bodies thrown against it. The father quickly pushed the wrestler within the aperture which closed on him and held him fast, which crack is to be seen to this day, whereupon he proceeded on his

journey for the bones of his sacrificed son, at the "lua iwi" of Wahaula.

Watching for a favorable opportunity between the inwashing waves he recognized and rescued the bones of his boy, which he carefully wrapped and conveyed back to his own district and home, and placed them where they would be safe from molestation by personal, or tribal enemy.

At our visit to the scene we were shown the small cove, deep down the jagged bluffs of Puna's coast line, at the southern end of Wahaula premises, where the bones of the slain were washed, and to this day is known as Holoinaiwi.

Some two miles from Wahaula, toward Kalapana, is the ruins of the heiau Punaluu, near a good sized spring of same name, which is said to be affected by the tide, and the scene of one of those alleged shark-man depredations so familiar to all Hawaiians. Its walls of heavy lava slabs had been well constructed after the Umi type of alleged hewn stone, but which appear to be simply selected slabs of the surface lava rock of the district, which may be readily broken straight. It measured 37 by 119 feet and was greatly damaged by the earthquake of 1868. The walls remaining are from three to five feet thick and stand from four to eight feet high, according to the slope of the land. The south end is a built-up platform 17 feet thick and stands three feet above the main floor, well leveled off with shore pebbles, a constructive feature found in no other. The paved floor of this heiau was in greatly disturbed condition, and it seemed strange that its walls of well fitted, heavy stone, should succumb to the earthquake shock while the lighter, clinker walls of Wahaula should be comparatively uneffected.

In central Kalapana, back in a coconut grove intermingled with breadfruit, kukui, hala and mango trees and guava is situated the ruins of the heiau of Niukukahi, so thickly overgrown with jungle as to render it impossible to discover its features, whether it was a part walled and part platform heiau, as it seemed in places, or whether it was the remains of an originally enclosed structure. We were unable to make measurements, as desired, though from a native source it is placed as about 150

feet square. Kapihe was its chief priest, a celebrity in his day, and mentioned by Ellis as "the priest, who in the days of Kamehameha, told the king, that after death he and all his ancestors would live again on Hawaii. Kapihe had many disciples who believed, or pretended to believe, his predictions."⁷

The celebrated heiau of Kukii, on the top of a hill of the same name, in Kapoho, Puna, built by Umi, of alleged "hewn" blocks of lava, so closely fitted together that—to use an Hawaiian's expression—"a spear of grass could not be inserted between," has little left to confirm such a story of ancient Hawaiian masonry. It has long been in ruins, and gradually its flat stones have been removed for various purposes. Kalakaua, on one visit, brought some down with him to put into the foundation of the palace in 1879. Later, two were sent down to grace the veranda steps of Kapiolani's residence, and the Lymans' place, at Kapoho, has some doing like service. Its foundation remains indicate a heiau of about 67 by 120 feet, but of what thickness or height of wall we could not determine. On one of the stones of its north-west corner was clearly cut the form of a bird, nesting. Other carved stones had been reported, but nothing further was found but what might have been the effect of weathering.

At the base of this hill of Kukii, on the eastern side, is the famous warm springs of Kapoho, a body of remarkably clear water affected by volcano and tide, of a depth of fifteen feet and hence, a most delightful bathing place.

Heiaus of Hilo.

Of the heiaus of the district of Hilo little evidence of their existence now remains, so complete has been their destruction, but though their stones are scattered, much of their history is yet preserved.

Probably the most prominent temple in this section was that of Kanoa, (or Kanowa as formerly known), that used to exist at Puueo, near the site of L. Severence's present residence. The time of its erection is not stated, but Kalaniopuu consecrated it

⁷ Tour of Hawaii, p. 267.

to the service of his war-god, Kaili, when he set out to subdue the rebel chief Imakakaloa,⁸ in Puna. This indicates it as a war heiau of the pookanaka class, though it was but of medium size, some 60x80 feet. Luupule is said to have been its priest, and Kane and Kanaloa its deities, in latter years. Its walls were thrown down prior to 1850, and entirely destroyed and its stones taken for road work in 1898.

It figures also as the threatened place of sacrifice of Umi and his three companions, in the early part of his reign, while residing incog in Hilo, for some slight to the daughter of the alii of the district, but from which predicament they were released through his retinue, at Waipio, proving good his claim.

Kaipalaoa, a heiau that stood near the foot of Waianuenue street, Hilo, about the site of the present armory, is claimed to have been the place where Keoua sacrificed Keawemauhili, Moi of the Hilo district, whom he had defeated about 1790, and the one from which Kamehameha I proclaimed his Mamalahoa law. The destruction of Kaipalaoa dates back to the period when Kua-kini was governor of Hawaii, probably when Kaahumanu issued her edict, in Hilo, for the collection and burning of the idols.

In the premises formerly owned by Kipi, on Waianuenue street, is a large boulder known as Pinao, which is said by old natives to have been the stone on which Keawemauhili was sacrificed. It was formerly a part of the heiau of Kaipalaoa, and was being taken for the building of the first Haili church, but for some reason was left in its present locality.

Occasional reference is made to Coconut Island (Mokuola) as the place of refuge of the Hilo district, hence its name, life island. Careful enquiry shows that the area of this puuhonua included also a portion of the mainland adjoining. The heiau connected with it, named Makaoku, was of the luakini class. Its dimensions are unknown, though it is said to have had a pyramid of stone some thirty feet high, as if for a place of observation. Remaining stones of this heiau were taken by Capt. Thos. Spencer for a boat landing, about 1860. The northern

⁸ Pol. Race, p. 201.

part of Mokuola is known as Kaulainaiwi, being the place where the bones were placed to dry, or for airing.

At Waipunalei, near Laupahoehoe, was a heiau, the name of which remains doubtful, though famed as being the one where Umi, on coming to power, caused a petty chief named Paiea to be sacrificed, to avenge an alleged insult a short time previous. Kaoleioku was its priest at the time, the one who befriended and aided Umi in the overthrow and capture of Hakau, who ruled after the death of Liloa, their father.

Heiaus of Hamakua.

Relative to the Heiaus of the district of Hamakua little is gathered beyond the historic records which centers around those of Waipio, more particularly that of Pakaalana. Fornander says, "it is not known by whom this heiau of Pakaalana was built, but it existed before the time of Kiha, grandfather of Umi, and its tabus were the most sacred on Hawaii, and remained so until its destruction and the spoilation of all the royal associations in the valley of Waipio by Kaeokulani, King of Kauai, and confederate of Kahekili, King of Maui, in their war upon Kamehameha in 1791.⁹

Lono was the god of this temple in the time of Kiha, and here Ika, chief of a bandit clan, with his companions, were slain by Kiha and sacrificed upon its altar.

Ellis¹⁰ quotes a tradition of this locality to the effect that in the days of Umi, that king, after having been victorious in battle over those of the several divisions of Hawaii, while sacrificing captives at this place, the voice of his god "Kuahilo" was heard from the clouds requiring more men. This was repeated till he had slain all his attendants, over eighty victims in number, and but the priest and himself alone remained.

Pakaalana was the puuhonua or place of refuge for all this part of the island; a large enclosure, though not so extensive as that of Honaunau. Within its area was a small house called Ke Hale o Liloa.

⁹ Pol. Race, p. 73.

¹⁰ Tour of Hawaii, p. 365.

The heiau of Moaula, also in Waipio valley, was repaired and consecrated by Kalaniopuu and dedicated after his proclamation of Kiwalao as his heir and successor to the government, while to Kamehameha was assigned the care of the priesthood and his war-god Kaili.

Ellis states there were several heiaus in the Waipio valley, but the only other one mentioned in the records is that of Honuaula, which figures in Kamakau's history of Umi, where, after his (Umi's) successful encounter with Hakau, his half-brother and successor of Liloa, Hakau, with his vanquished attendants were offered up in sacrifice upon its altar. In tradition it is said that when Hakau and his companions were placed in sacrifice upon the altar of Honuaula, amid thunder and lightning the tongue of God appeared out of the heaven, without bodily form being visible, which caused the altar to tremble and the burnt sacrifices to be quickly consumed.¹¹

Another Hamakua heiau to figure in history was that of Manini, at Koholalele, which was consecrated by Liloa after reconstruction in the fifteenth century. Laeanui was the high priest of Liloa, and at the dedicatory services on the above occasion he recited the "kuawili," or long prayer of consecration when twenty-four victims were laid upon its altar.¹² Manini came under the jurisdiction of the high priest Kaoleioku when Umi came into power.

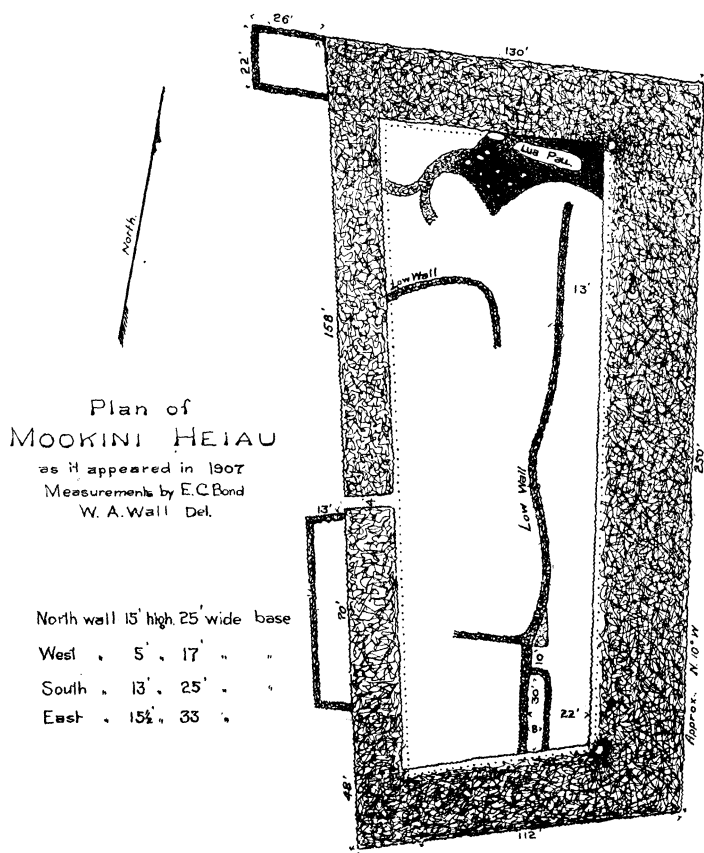
Heiaus of Kohala.

Continuing to the district of Kohala we come to a region that has retained much of interest relative to its heiaus, historic and otherwise, and of the present day information gathered thereon the ANNUAL is largely indebted to Mr. E. C. Bond, resident of the district. Here, close to the northern point of the island, on the land of Puuepa, stand the ruins of the heiau of Mookini, credited by Kamakau,¹³ and Fornander, as the second temple built by the high priest Pao upon Hawaii, and where he officiated.

¹¹ Au Okoa, Nov. 24, 1870.

¹² Legends and Myths of Hawaii, p. 265.

¹³ Kuokoa, Jan. 5, 1867.



It was probably one of the largest on the island, an irregular parallelogram in form, with walls even now measuring 267 feet on the west wall, 250 feet on the east wall, the north end being 135 feet and the south end 112 feet wide. The height of its walls have been over 20 feet, with a width on top of eight feet and 30 feet at their base.

The stones of which it is built are said to have come from Pololu valley, some ten miles distant, which, according to tradition were passed by hand from man to man the entire distance, a feat requiring at least 15,000 men. Fornander (in 1879), says, "when I visited the place ten years ago, the walls of the heiau were unimpaired, * * * and I was shown a secret well or crypt in the south side of the walls, east of the main entrance, several feet deep, but now filled up with stones and boulders like those composing the wall, which on removal revealed two maika stones of a fine white grain of extraordinary size, said to have been brought by Paoa from foreign lands,¹⁴ from 900 to 1000 years before the time of Kamehameha. Many points of interest in its vicinity are associated with Paoa.

It is difficult at times to reconcile current reports and belief with recorded traditions, and it is a coincidence that this apparent conflict applies to the two most famous heiaus of the district, that of Mookini, and Puukohola, at Kawaihae. It is evident, as has been mentioned by some writer that the credit of original construction is often overshadowed by the prominence given to the period or party concerned in its restoration. As illustrative of this and for details of the heiau of Mookini not found elsewhere, we quote from an account¹⁵ given by Rev. E. Bond, in 1885, the then resident missionary of the district, and the same popular beliefs were current during our residence there in the latter part of the sixties:

"My first visit to the heiau (of Mookini) was made in 1841. * * * The population in the vicinity was then somewhat numerous. From an old man who claimed to have been a priest in the establishment I learned much of the internal arrangement

¹⁴ Pol. Race, p. 37.

¹⁵ Saturday Press, April 25, 1885.

of the enclosure, the deposit for the bones of sacrifices not consumed, and that the dedication of the heiau took place when he was a young man; that ten human victims were moreover offered at the dedicatory service. These statements were fully corroborated by old people in the vicinity and in other parts of the district, many of whom declared themselves to have been eye witnesses of the ceremony. The stones of the enclosure, they assured me, were brought from Pololu valley; the people having been gathered by the chiefs from various parts of the islands, stood in line from Pololu to Puuepa and passed the stones from hand to hand.

"With these statements, so far as known uncontroverted, I had settled down in the conviction that the Puuepa heiau was not a very ancient structure. It is, however, quite possible that it may have been begun long years in the past, and also that but a part of the stones were taken from Pololu valley. * * *

"In 1843 I made a thorough examination, taking measurements, etc. * * * On the northeast corner, outside, is the large flat stone on which the victims were holeholed when taken from the lele, which stood at the right hand of the entrance."

A cave is said to have run from the sea to the heiau, and the lua-pa'u in the northeastern corner of the platform was connected with it.

From Mr. E. C. Bond's reports covering his investigations of some months past we condense the following account of the minor heiaus of his district:

Puuomanea is a heiau and puukaua (battle hill), 18 to 24 feet long and about four feet high, originally built up with some regularity, situate on the ridge between Honokane-nui and Honokane-iki, near the eastern limits of North Kohala. It consists of a large heap of a-la (smooth or water worn) stones, which are said by an old native to have been carried up from the bottom of Honokane-nui for use as missiles in an anticipated battle against Umi, who was approaching by the mountain route from Kau and the Konas. To this cavalcade and this chief belonged that place called Ahu-a-umi, mauka (inland) of Hualalai. Believing this party in their march would descend into Honokane-

nui by way of Kohala these stones were collected on Puuomanea, but instead, he came by way of Waimea, Ouli and Puu-opili, in Kawaihae-uka, to attack them in the rear. This fact, with the great number of people in his army, caused the would-be defenders to flee incontinently, leaving their heap of stones unused, to remain to the present day.

Hoolonōpahu, a small heiau, said to have been built long before Kamehameha's time, and located on the most prominent sand hill in Pololu valley, near its east side and connected therewith by a narrow ridge, distant some 300 feet from the beach; the entire beach across the mouth of the valley being composed of a fine dark sand that has been blown up by the wind into an irregular line of low hills.

The sound of a drum was continually heard during the nights of Ku, proceeding from the locality of this heiau, hence its name. But when search was made the following morning, no drummer could be found. Finally direction was given by the chiefs to search the premises and on failure to find the cause to demolish the heiau, which was done. All that now remains is an inconspicuous pile of stones but a foot or two above the sand. It would appear from this and from descriptions that have been given of other heiaus, that the minor ones sometimes consisted of nothing more than a stone cell of but small dimensions. Residents of the valley aver that the sound of the drum is occasionally heard, even now.

Kuapalaha. This heiau is in Makapala and occupies the top of a low hill that rises in the mouth of a ravine and faces the sea in a precipice 60 feet or more in height, westward of the Keokea landing, once used as a shipping point by the Niulii plantation. The hill is now so overgrown with brush that no close examination could be effected, but it was found to be crowned by a stone wall of from six to ten feet or more in thickness, and at the present time about four feet high, inclosing a leveled square space. Upon a subsequent visit its dimensions showed 127 feet on the north or sea side, 135 feet each on the west and south sides, and 112 feet on the east side. Whether a smaller enclosure abutting this one lower down the slope on its mauka side, and toward its

southeast corner, constituted a part of the same structure, I would not venture to say on so partial an inspection, but took it to be of more recent date for a more ordinary purpose.

Moving westward to Halawa, a few feet below the railroad and some 500 feet from the sea cliffs, is situated the platform heiau of Kapalama, on the upland east of Kapanāia landing; a road through the cane field passing along its side. So far as is known this was never more than an immense stone pavement overlaid with pebbles; the only walls being the retaining walls built on the north and west sides for the purpose of leveling up the area. The remains of the west wall shows it to have been accurately aligned and well built. The sloping face of the seaward wall must have been as much as eight feet high. By pacing only, I found the area to be approximately 240x260 feet. This whole area was nicely paved with shore stones, and overlaid with loose pebbles from the same source. The question arises of what use could the ancient Hawaiians have made of this large open area called a heiau? The houses occupied grounds to the eastward, the marks of their location being yet distinguishable. About 80 feet from the southeast corner lies a large, irregular, stone about 18 inches thick which my guide with some hesitency showed me, saying, he had been informed that it was the stone on which human bodies had been cut up, but he could not vouch for it. There is no reason to doubt that it was the stone on which the flesh of victims had been stripped from the bones, similar to the one at Mookini.

A little further to the west, at Hapuu, also in Halawa, is the heiau of Hale-o-Kaili, at the landing once used by the Halawa plantation. Like the one just mentioned, this is said to have been only a stone pavement, starting about 40 feet from the edge of the sea cliff at a spot on the east side of the small bay, and running eastward 80 feet, with a width of 60 feet, paced measurement. It is said that when digging to place a chute to facilitate the handling of sugar in loading boats at the base of the cliff, an ancient storage cave of the chiefs, extending beneath the heiau, was opened by the natives, but immediately covered up and kept a secret.

Ellis in his tour through this district describes¹⁶ this Hale-o-Kaili as the family heiau of Kamehameha, of which Kaili was the god. It was an insignificant pile of stones. His guide said that its kapus were very strictly observed, and the punishments incurred by breaking them were invariably inflicted on the transgressor; and that Kamehameha always supposed his success in every enterprise, to be due to the strict attention to the requirements of his god. Many persons, said the guide, had been burnt in the adjoining hills for having broken the kapus enjoined by the priests of Kaili.

Moving again to the westward, about one-third of a mile into the next bay was located the site of the heiau of Ohau, reported as having been about 40 or 45x50 feet, its walls 12 to 14 feet in height, some 14 feet thick at the base and about six feet at the top. Until within five years this structure was in a good state of preservation, and the removal of so manifest a heiau, by E. E. Olding, for the sake of using the bit of ground it covered, for cane, may be considered a bit of greedy vandalism. This heiau stood on a low swell of ground near the mouth of a ravine, about 350 feet from the shore. The stones which comprised this structure may now be observed in a massive wall ten feet thick, about 140 feet long, and 12 to 14 feet high, built across the bottom of the ravine. It is said that during their removal numbers of human bones were unearthed, some of which were sacked and cast into the sea, and others re-interred.

On the adjoining land, Halelua, eastward of the lighthouse, is said to have been a small heiau whose walls were removed early in the sixties when the Kohala plantation was started. This was Muleiula, traditionally credited to Hua, the infamous king of Hana, Maui, when he raided Hawaii. [Fornander mentions that in Kauhi-a-kama's time this heiau of Muleiula belonged to a chief name Kamakaohua,¹⁷ and it appears again in a list of several as consecrated by Lonoikamakahiki¹⁸ in his tour of the island.—Ed.]

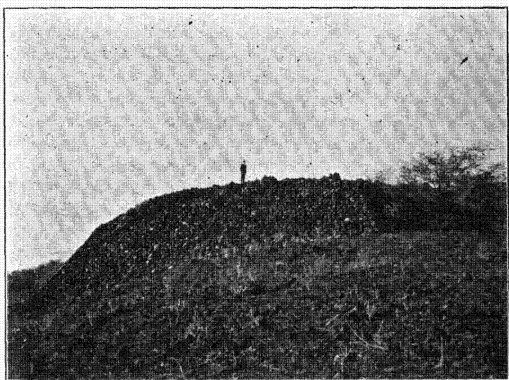
The most familiar of all heiaus of the islands is the famous one

¹⁶ Tour of Hawaii, p. 290.

¹⁷ Pol. Race, p. 276.

¹⁸ Pol. Race, p. 122.

at Kawaihea, named Puukohola, from its being on the travel route of so large a portion of residents and visitors, and figures prominently in history in connection with Kamehameha's supremacy. It is generally referred to as the last heathen temple erected, but on this point there are evidences otherwise.



HEIAU OF PUUKOHOLA, KAWAIIHAE.

The earliest descriptive account given of this celebrated heiau is that of Ellis from his visit in 1823, at which time it was doubtless in perfect order, being then only 30 years since its completion by Kamehameha, and but four since its disuse. We quote therefrom as follows:¹⁹

"Puukohola stands on an eminence in the southern part of the district, and was built by Kamehameha I, about 1793, (Alexander says 1791), when he was engaged in conquering Hawaii and the rest of the islands. He had subdued Maui, Lanai and Molokai, and was preparing—from the latter—to invade Oahu, but in consequence of a rebellion in the south and east parts of

¹⁹ Tour of Hawaii, pp. 81-83.

Hawaii, was obliged to return thither. When he had overcome those who had rebelled he finished the heiau, dedicated it to Kaili, his god of war, and then proceeded to the conquest of Oahu.

"Its shape is an irregular parallelogram, 224 feet long and 100 wide. The walls, though built of loose stones, were solid and compact. At both ends and on the side next the mountains, they were twenty feet high, twelve feet thick at the bottom, but narrowed in gradually towards the top where a course of smooth stones, six feet wide, formed a pleasant walk. The seaward wall was not more than seven or eight feet high, and proportionately wide. The entrance to the temple was by a narrow passage between two high walls. * * * The upper terrace within the area was spacious, and better finished than the lower ones. It was paved with flat, smooth stones, brought from a considerable distance. At the south end was a kind of inner court, which might be called the sanctum sanctorum of the temple, where the principal idol used to stand, surrounded by a number of inferior deities."

Jarves states that "eleven men were immolated on its altar on the day it was completed, and great quantities of fruit, hogs and dogs presented."

From Fornander and native accounts we gather the following historic mention of this heiau:

"A revolt occurred on Hawaii which had its strength in Kohala during Lonoikamakahiki's visit to Kakuhihewa's court at Oahu, which hastened his return, and landing at Kealakekua where he began gathering his forces and securing the aid of Pu-puakea and troops, from Kau, they met and routed the rebels in two battles, near Wainanalii and at Kaunooa. Reinforced from Kohala and Hamakua the rebels gave two other engagements, at Puupa and Puukohala, near the heiau of that name, in both of which Lono was victorious, and Kanaloakapulehu, one of the four revolting brothers, was taken prisoner, slain, and sacrificed at the heiau.²⁰

²⁰ Pol. Race, p. 121.

"Puukohola is one of several named heiaus consecrated by Lono, as acknowledgment to the gods for his victories after he had restored peace and order."²¹

This indicates that the heiau of Puukohola was in existence in the time of Lonoikamakahiki (1565-95), yet Kamehameha is credited with its construction in the following events of his reign:

"At the time of his (Kamehameha's) sending Kikane on a mission to Kahekili, King of Maui, Molokai and Oahu, to arrange for a place of landing and field of battle, he sent Haalou, (grandmother of Kaahumanu), also to confer with Kapoukahi, Kauai's renowned prophet, to obtain his opinion as to the best way to secure his (Kamehameha's) supremacy. In reply Haalou was instructed to tell Kamehameha to build a large heiau for his god at Puukohola, adjoining the old heiau of Mailekini, near Kawaihae; that done he would have supremacy over Hawaii without more loss of life."²²



SEAWARD TERRACED WALLS OF PUUKOHOLA.

²¹ Pol. Race, p. 122.

²² Pol. Race, p. 240.

"During several years of struggle with Keoua, the great heiau on Puukohola was in course of construction, but he had been unable to subdue him, so, acting on the Kauai soothsayer's advice the construction of the heiau was resumed with a vigor and zeal quickened, perhaps, by a conscience of neglected duty, with all the people and chiefs from Kona, Kohala and Hamakua to assist at its building."²³

Kamakau says:²⁴ "In the building of Puukohola no high chief was exempt from carrying stones for it, except Keliimaikai, who, seeing Kamehameha engaged in this labor also seized a stone and shouldering it set out for Puukohola. Kamehameha observing this remonstrated, and taking it from him said: 'you be the one to observe the kapu,' then he directed that the stone be taken and cast into the sea."

"When the heiau was completed, but not consecrated, Keaweheulu and Kamanawa, two ministers of Kamehameha, set out to induce Keoua Kuahuula, Moi of the eastern division of Hawaii, then in Kau, to visit Kamehameha, on the pretext of amicably terminating the war differences that had so long existed between them. After some hesitency, and against the wishes of his advisers, he consented, and set forth in well manned double canoes for Kawaihae, touching at various points en route. As he neared his destination and witnessed the preparations for his reception he felt misgivings as to the true intent, and remarked to Kamehameha's emissaries accompanying him 'that the clouds forebode trouble. Rearranging his forces and taking into his own canoe with him those designated as 'moepuu' (companions in death), twenty-seven in number, he continued on till nearing the shore at Mailekini, where he was surrounded by Keeaumoku, Kamanawa and others. Keoua standing up and addressing Kamehameha, says, 'Here am I,' to which Kamehameha replied: 'Stand forth, that we may see each other.' As Keoua stood, with the intent of leaping ashore, Keeaumoku threw a spear at him, which he dodged but caught, when it became an object of contest between them till at last Keoua and many others of his com-

²³ Pol. Race, p. 328.

²⁴ Kuokoa, May 4, 1867.

panions were killed, and his body was taken and offered up in sacrifice upon the altar of Puukohola.”²⁵

Of Mailekini heiau little of its history is learned, or what connection, if any, it had in its working with Puukohola within two hundred feet above it. In early days it was said that traces of an underground passage existed, though it was difficult to tell whether or not the two temples were connected by it. Mailekini is longer and narrower than its neighbor above, being 250x85 feet, but like it is open on the sea side.

A tradition is current that this was the one that Kamehameha set out to rebuild that he might be successful in war, but on the advice of Kapoukahi he transferred his labors to the upper one of Puukohola, as has been shown.

Heiaus of Kona.

Of the heiaus of Kona, too few particulars are gleaned to satisfy the enquirer, either from the historic or traditional standpoint, considering their number and the importance many of them held in this once numerous populated district.

The heiau of Ahuena, at Kailua, described by early visitors as “of truncated form,” would indicate it as of great antiquity. It is said to have been 150x120 feet, and is the first mentioned in the list of those put in repair by Kamehameha in his tour of the island for such service and the replenishing of images, but it was changed to a fortress at the close of his reign. Ellis, in 1823, refers to it as follows:²⁶ “Adjacent to the governor’s house stand the ruins of Ahuena, an ancient heiau, where the war god was often kept and human sacrifices offered. Since the abolition of idolatry in 1819 the governor has converted it into a fort, widening the stone wall next the sea and placing upon it a number of cannon. Three idols are still upon the walls, one at each end and one in the center, one of which stood sixteen feet above the wall, was upwards of three feet in breadth, carved out of a single tree.” Vancouver on his visit to Kailua, in 1794,²⁷ de-

²⁵ Kuokoa, May 11, 1867.

²⁶ Tour of Hawaii, p. 436.

²⁷ Vancouver’s Voyage, London, 1801, Vol. V, p. 103.

scribes the heiau in the neighborhood of Kamehameha's royal residence as "the most complete structure of the kind and kept in the greatest order and repair of any that had fallen under his observation, decorated with several statues or idols carved out of the trunks of trees and meant to imitate the human form, but of the most gigantic and preposterous figures."

Keikipuipui was the Kailua heiau of Kamehameha, according to Kamakau, and while of but 100x80 feet in size, its paehumu, or surrounding fence, contained forty images.²⁸ Its erection is credited to Liloa, and is listed among those repaired by Kalanio-puu at the time of his war against Kahekili, of Maui, hence of pookanaka class. Holoae was its priest at that time.²⁹ This heiau was demolished to furnish stones for the first church on Hawaii.

Kauaikahaola, situate at Puapuaa 1, was another heiau of early construction that had its last repairs at the hands of Kamehameha. Ellis describes³⁰ this "as 150x70 feet in size, built of immense blocks of lava. At the north end was a smaller enclosure sixty feet long by ten wide, partitioned off by a high wall with but one narrow entrance. The places where the idols stood were apparent, but these had been removed. The spot where the altar had been erected could be distinctly traced, a mound of earth, paved with smooth stones and curbed around. Four principal idols were worshipped at this temple, one of stone, two of wood, and one covered with red feathers, named Kanenuiakea, Kaneluluhonua, Lolamakaeha and Kekuaaimanu."

Pakiha, at Kaluaokalani, near Holualoa, was a large heiau of some prominence in its time and dating back, Ellis informs us, to Queen Keakealani, in the sixteenth century. At his visit "it was in good state of preservation; the walls solid, thick, and nearly entire; with stones piled upon the top in a singular manner like so many small spires which gave it an unusually interesting appearance. Its dimensions were 270x210 feet."³¹ In Mr. Stokes' recent heiau search through the district nothing was

²⁸ Kuokoa, Aug. 24, 1867.

²⁹ Pol. Race, p. 152.

³⁰ Tour of Hawaii, p. 101.

learned of Pakiha, though one now known as Haulani, in Holualoa 4, from its size and condition indicated it as probably the same. Its exterior walls are high, solid, and in fair order, but the internal features have been eliminated to allow cultivation within its area.

Kanekaheilani (now known as Keolonahihi), at a point on the sea shore at Holualoa 4, is a heiau of two divisions, 135x80 feet over all; its walls of ordinary height are still in fair condition, the west end wall being curved. Its inner (western) division contains a clear pool of brackish water, which is said by the natives to have been the favorite bathing pool of Kamehameha, which no other person was allowed to use.

Ohiamukumuku, situate at Kahaluu, one of the early heiaus of the district (traditionally said to have been built by the gods, not by the people), was another of those put in order by Kalanipuu and dedicated to Kaili, under the charge of Holoae, his high priest, to maintain its service and accomplish the defeat and death of Kahekili.³²

It also figures in the earlier wars with Maui, and became the place of sacrifice of Kamalalawalu and his general, whose raid of Kona in the time of Lonoikamakahiki met with ignominious defeat. Tradition couples with this event the death also of two celebrated dogs which the Maui king brought over with him as mascots, a white one named Kauakahiokaoka, and a blind black one named Kapapako, which, on the death of their royal master, are said to have lain down beside its walls and died, and they were there buried.

Nothing of this heiau now remains, its stones having gone into church structures of the neighborhood.

Makole-a, a smaller heiau, not far distant, is like the foregoing, beyond the traditional record for the time of its construction, though it appears in a list of several consecrated by Lono. Its remains are yet in fair condition, measuring 97x60 feet; the walls being thick and five feet high. A low wall runs lengthwise, forming two internal divisions.

³¹ Tour of Hawaii, p. 102.

³² Pol. Race, p. 152.

At this heiau a rebel chief named Kapulani was condemned to death by Lono, and ordered to be sacrificed the next morning, but during the night he was set at liberty by Lono's niece and made his escape into Kau and was not further molested.³³ It is said that after Kamalalawalu was slain at the heiau of Ohiamukumuku his body was burned on the altar of Makole-a, but instead of his bones remaining in Kona, they were subsequently conveyed to Maui in the time of Kaahumanu.

Keeku, also in Kahaluu, is credited to Kamehameha as its builder. It was of heavy construction, and built up quite high. Its condition is yet fair in parts, and measures 170x130 feet, its northern end being nearly forty feet wide, which may have been its platform. All its interior divisions have been removed, save indications of four house plats along its eastern side. A lone Hawaiian palm, very tall, and many coconut trees are growing within its area.

Little now remains of Kapuanoni, a large heiau of Kahaluu, described as an ancient puuhonua and luakini, built in the time of Lono. Tradition has it that when Malaihi was its kahu (or keeper), a native fled to it from Pahoehe and was followed in by his pursuers, seized, and taken away without remonstrance, which violation coming to the ears of the king he had the keeper slain and sacrificed on the altar of Ohiamukumuku.

Hapaialii, was another Kahaluu heiau, of large dimensions, reported as 300x170 feet in size, and credited for its construction to Kamehameha after the battle of Mokuohai, about the same time as Keeku. It was built near the shore partly on pahoehe and partly on the sand. The character of its stones indicate it as belonging more likely to the earlier period of Umi. A corner of heavy stones yet remain in fair condition close to the shore: the rest having fallen away and in parts entirely gone.

Kamauai, a heiau of Keauhou, whose site is said now to be a house lot, was one of pre-historic times, ascribed to Kane himself, the great god of Hawaii, and of large size. Tradition connects the first introduction of vegetables into these islands with this

³³ Pol. Race, p. 122.

heiau, where it says: "When the canoe with its strange products reached Keauhou some of the people lifted up the vegetables and asked Kupu-a-huluena (a famous kupua who had traveled in foreign lands) their names, he gave them successively, then directed that they be offered upon the altar of Kamaui, whereupon, after due ceremony, they were distributed and planted out, and have been successfully propagated from that time."

Hikiau, the famous temple of Kealakekua, where Captain Cook participated in its ceremonies with Koa, its high priest, is said to have been of the ancient truncated pyramidal form that prevailed before the southern migratory period.³⁴ Captain King, who accompanied and participated with Cook in the temple service, gives a descriptive account of this heiau and furnishes also a detail of ceremonies nowhere else met with, from which we make the following extracts:³⁵

"It was a square, solid pile of stones, about forty yards long, twenty broad and fourteen in height. The top was flat and well paved, and surrounded by a wooded rail, on which were fixed the skulls of the captives sacrificed on the death of their chiefs. In the center of the area stood a ruinous old building of wood, connected with the rail on each side by a stone wall, which divided the whole space into two parts. On the upper side were five poles, upward of twenty feet high, supporting an irregular kind of scaffold; on the opposite, sea side, stood two small houses with a covered communication.

"We were conducted by Koa to the top of this pile by an easy ascent, leading from the beach to the northwest corner of the area. At the entrance we saw two large wooden images, with features violently distorted, and a long piece of carved wood of a conical form inverted, rising from the top of their heads; the rest was without form, and wrapped round with red cloth. We were here met by a tall young man with a long beard, who presented Captain Cook to the images, and after chanting a kind of hymn, in which he was joined by Koa, they led us to that end

³⁴ Pol. Race, p. 174.

³⁵ Cook's Voyages, London, 1784, Vol. III, pp. 6-9.

of the heiau where the five poles were fixed. At the foot of them were twelve images ranged in a semicircular form, and before the middle figure stood a high stand or table on which lay a putrid hog, and under it pieces of sugar-cane, coconuts, bread-fruit, plantains, and sweet potatoes. Koa having placed the Captain under the stand, took down the hog and held it toward him; and after addressing him a second time in a long speech he let it fall on the ground, and led him to the scaffolding, which they began to climb together, not without great risk of falling. At this time we saw coming in solemn procession, at the entrance of the heiau, ten men carrying a live hog and a large piece of red cloth. Advancing a few paces they stopped and prostrated themselves; and Kaireekee (Kailikia?), the young man above mentioned, went to them, and receiving the cloth carried it to Koa, who wrapped it round the Captain, and afterwards offered him the hog, with the same ceremony.

"Whilst Captain Cook was aloft in this awkward situation, swathed round with a red cloth, and with difficulty keeping his hold amongst the pieces of rotten scaffolding, the priests began their office, chanting sometimes in concert and sometimes alternately. This lasted a considerable time; at length Koa let the hog drop, when he and the Captain descended together. He then led him to the images before mentioned, and having said something to each in a sneering tone, snapping his fingers at them as he passed, he brought him to that in the center, which, from its being covered with red cloth, appeared to be in greater estimation than the rest. Before this figure he prostrated himself and kissed it, desiring Captain Cook to do the same, who suffered himself to be directed by Koa throughout the whole of this ceremony.

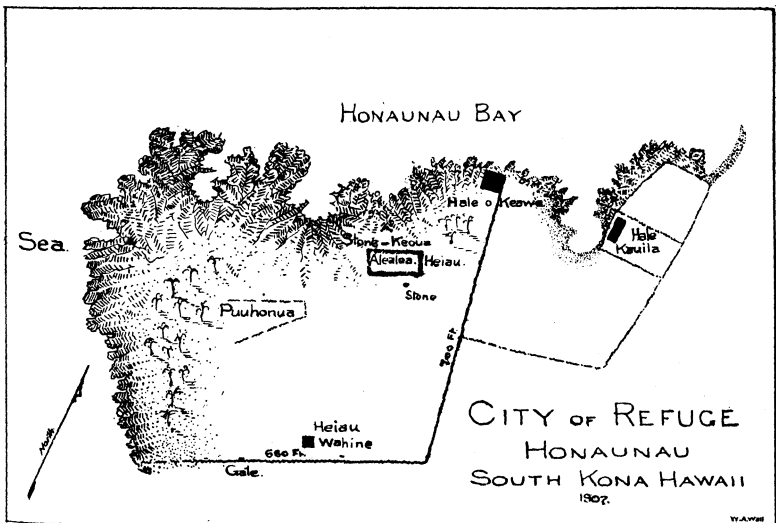
"We were now led back to the other division of the heiau, where there was a space ten or twelve feet square, sunk about three feet below the level of the area. Into this we descended, and Captain Cook was seated between two wooden idols, Koa supporting one of his arms, whilst I was desired to support the other. At this time arrived a second procession of natives,

carrying a baked hog and a pudding, some breadfruit, coconuts, and other vegetables. * * *

"When this offering was concluded, which lasted a quarter of an hour, the natives sat down fronting us, and began to cut up the baked hog, to peel the vegetables and break the coconuts, whilst others employed themselves in brewing the awa, which is done by chewing it. * * *

"When this last ceremony was finished, which Captain Cook put an end to as soon as he decently could, we quitted the heiau, * * * the men with wands conducting us to the boats, repeating the same words as before."

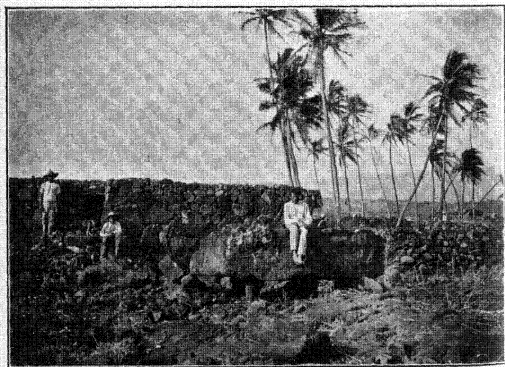
Kiwalao, brother and co-heir with Kamehameha of the kingdom of Hawaii, who met his death in the battle of Mokuohai, was said to have been interred in the temple of Hikiau.



At Honaunau is the most celebrated of the places of refuge, and the only one now in existence, the dimensions and description of which is given by Ellis as follows:³⁶ "In form it was

³⁶ Tour of Hawaii, p. 157.

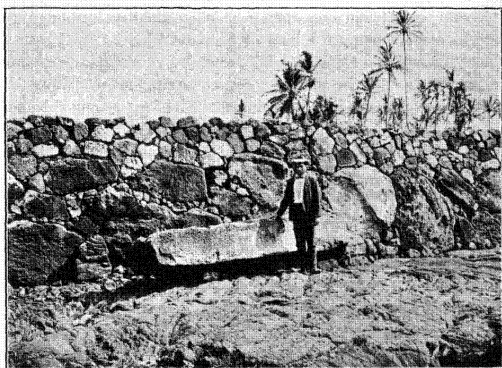
an irregular parallelogram, walled up on one side and at both ends, the other being formed by the sea beach, except on the northwest end, where there was a low fence. We found it to be 715 feet in length and 404 feet wide; its walls twelve feet high and fifteen thick. Holes were visible in the top of the wall where large images had formerly stood, about four rods apart, throughout its whole extent. Within this enclosure were three heiaus, two of which were considerably demolished, while the other was nearly entire, a compact pile of stones laid up in a solid mass, 126 feet by 65 feet, and ten feet high. Many fragments of rock, or pieces of lava, of two or more tons each, were seen in several parts of the wall, raised at least six feet from the ground. We could not learn how long it had been standing, but were informed it was built for Keawe, who reigned in Hawaii about 250 years ago."



"KAAHUMANU" STONE, LOWER TEMPLE, CITY OF REFUGE.

It may not be generally known that this puuhonua of Honanau has been restored within the past few years at the expense of Mr. S. M. Damon, including two of the three heiaus that be-

longed to the enclosure. Alcalea, as described above, and Aka-hipa, a small structure near the mauka wall, termed the women's heiau. This work of restoration was done under the supervision of W. A. Wall, surveyor, to whom the ANNUAL is indebted for the accompanying plan of the enclosure.



"KEOUA" STONE, LOWER TEMPLE, CITY OF REFUGE.

Adjoining it was the noted Hale o Keawe, the royal tomb, erected by Kanuha, a son of Keawe II, about the year 1690,³⁷ built of kauila timber. This was removed about 1829 by order of Kaahumanu, the remains of the kings and chiefs being brought to Honolulu for interment and its timbers formed the hale kauila that stood between the old fort and the court house.

Heiaus of Kau.

Of Kau's heiaus little is gathered. Historically, Pakini figures prominently, having been built by Kalaniopuu and dedicated to his war god during the time of his war with Imakakaloa,

³⁷ Alexander's Brief Hist., p. 46.

chief of Puna, in expectation of his capture, which, being accomplished, was made his place of sacrifice.³⁸ The performance of the ceremonies on this occasion devolved upon Kiwalao, but while presenting the offerings of hogs, fruits, etc., preparatory to the human sacrifice, Kamehameha seized the slain body and placed it upon the altar and dismissed the assembly.³⁹

Recent enquiry in the district fails to identify it though the records place it as on the land of Kamaoa.

Kohaikalani, at Makanao, Hilea, is the ruins of a well built heiau, 160x80 feet in size, one corner having fallen away. Its walls are five to six feet high; internal divisions removed to permit cultivation, hence probably their being kept in repair. This is said to have been of luakini class, of which Kahoapuaku, a relative of Keoua, was its priest.

An important heiau of Punaluu, said to have had affiliations with Wahaula, in Puna, was Kaneelele, of which nothing but portions of foundation walls can now be discerned.

It is hoped to complete this series of historic research papers in the next ANNUAL, to embrace the temples of Maui and Molokai, thus covering the entire group.

³⁸ Kuokoa, Feb. 16, 1867.

³⁹ Pol. Race, p. 202.

HISTORIC MISSION HOUSE.—The first framed house of the first missionaries to these islands that was erected at Kawaiahao, on King street, and the first framed structure in this city—has been rescued from the ravages of insects and time, having been thoroughly renovated and placed in fac simile of the original structure so far as possible. An account of this house was given in the ANNUAL for 1897, with a brief historic sketch of it as the home of several mission families in order of succession. For this last change it was bought by Mr. Chas. M. Cooke, and turned over to the Mission Children's Society to be used as a repository of relics of early mission days and the archives of the Society.

A NOBLE INAUGURAL ADDRESS.

THAT the Governor's mantle has fallen on capable shoulders is readily conceded by all classes throughout the Territory, and is shown clearly in the inaugural address of Hon. W. F. Frear, at the resignation of Governor George R. Carter from the cares of State, on August 15th last.

Space is here given for its entirety rather than a summary thereof, for it will be as valuable for reference as it was inspiring at its delivery. Hawaii's century of political history is ably covered in the brief retrospective sketch given, as the ground of faith for the people of these islands to labor together for that larger prosperity our beneficent climate, productive soil and commanding position entitles them; and is, throughout, an encouragement toward a continued harmonious development of the varied possible industries already in progress.

"Lord Bolingbroke, in his essay on the study and use of history, quoted from an ancient Greek, that 'history is philosophy teaching by examples.' One of the best philosophies which history thus teaches is that of faith in the future. This it does not alone by self-sacrificing deeds and brilliant achievements which excite admiration, but even more by aggregations or successions of events and conditions which disclose movements, relations and tendencies. He who looks solely to the immediate or the isolated risks finding cause for pessimism alone; he who takes a comprehensive view can scarcely avoid an uplift to heights of optimistic courage and endeavor. Weeds of bickering and greed and spite ever stand conspicuous in the foreground, but by raising our eyes and looking back along the avenue of time, we may behold the stately palms of purpose and progress; happy are we if thus inspired we may turn and catch, through the mist of uncertainty or even apparent gloom, a vision of the opening future.

"In no history is the philosophy of faith taught more clearly than in that of Hawaii. It is a great history in miniature. In

small compass and the short span of a century it exhibits the problems and their solutions that have made up in large part the histories of great nations of centuries' growth—problems religious, educational, hygienic, racial, social, political, industrial. For nearly a century Hawaii has been a sociological experiment station or laboratory. The problems have been those of the elevation of an aboriginal race from a state of pagan barbarism to one of Christian civilization and the realization of Anglo-Saxon ideals in a tropical environment. The solution has been, not by the slow process of self-evolution, nor by the forced imposition of foreign ideas, but by development through the peaceful yet rapid introduction of such ideas and their gradual but ready assimilation by the native race—the process of natural growth under artificially improved conditions. The three main general agencies of modern civilization, the church, the school and the printing press, were brought to Hawaii in 1820. The influences of the better classes of whites coupled with the receptiveness of the natives for higher things and the recognition by the wisest of their chiefs and common people of the necessity of keeping pace with swiftly changing conditions if they would continue numbered among the nations of the earth, produced results that cannot but excite marvel. The natives soon graduated from the field of missions, a Christian nation; they quickly became one of the least illiterate of peoples; they rapidly acquired high moral, social and political standards and have manifested increasing capacity for their attainment. There was swift transition from a state of feudalism to one of individual ownership of land; from a government of absolute despotism to one of limited constitutional monarchy and further, even before annexation, to one of advanced republican form. Industries were built up as circumstances required or permitted, until Hawaii attained first rank in point of high development of one of the world's greatest industries, and her inhabitants became one of the most prosperous of peoples. These achievements were due mainly to American influences; here, indeed, grew the only community of American spirit on foreign soil. So quiet were the workings of these influences that they permeated the native mind and heart with-

out violent shock; so powerful, that the two races soon found themselves akin in spirit and aim; so rapid, that Hawaii, though the much-coveted gem of the Pacific, was enabled to preserve her independence against designing nations until manifest destiny required her adoption by the Great Republic, and then so thoroughly imbued was she with American principles that she was received as one of the family, and not as a mere possession.

“Let us not be deceived into supposing that all this was merely fortuitous. The inspiration that comes from a study of Hawaiian history is not mere optimistic enthusiasm nor superstitious hope for future good luck based upon past fortune, but faith—faith that enables us to cry, with the poet, ‘The future I may dare to face, now I have proved the past.’ One cannot read that history intelligently and sympathetically without being impressed by the unfailing operation of the law of cause and effect. The Hebrew seer learned from history that ‘Righteousness exalteth a nation; but sin is a reproach to any people.’ The strong Kamehameha I went far toward discovering the same truth with the faint light that he had amidst the darkness of his own people and the godlessness of most of the whites with whom he came in contact. The magnanimous Kamehameha III realized it when on the restoration of independence he gave to his people their national motto. High purposes, adaptability to conditions, vigorous and united effort—these rather than favoring circumstances account for Hawaii’s moral, political and industrial progress. Biologists emphasize the factor of inheritance and the slowness of the evolutionary process; geologists discourage with their æons of time; but Hawaii’s sociological laboratory shows what man can do through earnest and thoughtful endeavor just as her geological laboratory shows what nature can do under special conditions of climatic and volcanic intensity.

“The same lesson of faith is taught by the story of effort and accomplishment under territorial government. Seven brief years, and yet what grand results, if we but pause to view them!—years, it is true, largely of adjustment to new conditions but equally years of advance. Natural feelings of sadness and even of bitterness over loss of independence—feelings not confined to

Hawaiians alone—have passed from the stage of outward manifestation and in large measure from existence; there is every reason for belief that the Hawaiians will soon have passed from a state of reconciliation to one of the same ardent loyalty and patriotism towards their adopted country that characterized their attitude toward their former country. The first legislature seemed to justify the contentions of those who opposed manhood suffrage; but how splendidly succeeding legislatures have proved the contrary! The entire body of Hawaiian statute law has been put in compact and harmonious form and added to by numerous other laws remedial and constructive. Government by the fictitious beneficent despot or even by a commission would be unsatisfactory, demoralizing and unworthy of a people at all capable of self-government; for the same reasons, government by limited suffrage cannot be justified where unrestricted suffrage is compatible with safety. While the Hawaiians, composing the majority of voters, have not, as a rule, exhibited strength in initiative or administrative qualities, they have displayed in a remarkable degree qualities more essential in an electorate,—amenability to reason and a disposition and capacity to make right choices. The chief executive office has been filled by men of rare singleness of purpose, breadth of view and courage of conviction; the high standards of aims and methods and results which they have established under special difficulties will be hard to maintain. It is true, the Territory must confess humiliation for a time through corruption and inefficiency on the part of several subordinate officials, but the lesson from this and from the promptness and vigor with which the condition was met has proved quite as valuable as that condition was painful. The judiciary also experienced turbulent times for awhile owing to the grave and difficult questions that arose out of the new conditions and the disposition of some to bring the courts into politics, but has long since been restored to the high status previously enjoyed for half a century. Local government has been established without the baneful results predicted—more expensive at present and perhaps in some respects less efficient than centralized government, but on the whole more satisfactory and

educative to the masses. Public bankruptcy, threatened by the transfer of import duties to the federal government, has been averted, and equilibrium restored between public revenue and expenditure. Recovery has been had from a calamitous pestilence, accompanied by an extensive conflagration, in the capital; scientific investigation has been begun for the ultimate eradication of the most dreaded disease; the public health has never been better safeguarded than now from dangers within and without. Our industrial system has survived an excess of expansion followed by a period of low prices, epidemics of plant diseases, and scarcity of labor. Disastrous experimentation with one of Hawaii's gravest questions has had its natural culmination in a saner control of the liquor traffic.

"The schools have grown in quality of work as well as in numbers of pupils notwithstanding a period of abnormal inadequacy of funds. Progress has been made in the application of advanced penological principles, especially as applied to juvenile delinquents. Evidences of moral and religious quickening are apparent on every hand. Much has been accomplished in the construction of public works, preservation of forests, settlement of public lands, introduction of labor of citizen-making material, establishment of diversified industries, execution of irrigation projects, utilization of water power. And thus the list might be continued,—but what of the future?

"The good work thus begun in so many directions may be expected to continue and new work be undertaken in other directions. Our great president has the interests of the Territory deeply at heart. The recent visits of many members of congress and the appropriations made by that body at its last session to an amount bearing appropriate relation to the revenue obtained from the Territory, indicate that acquaintance with our needs is sufficient to insure our due at the hands of the national legislature. The developments of seven years call for changes in the Organic Act of the Territory with a view to greater simplicity in the machinery of government, greater economy and efficiency in its administration and greater elasticity and scope in its powers. What we ask of congress is indeed reasonable and in the main

for the national weal as much as for the local—appropriations for harbors, light houses, naval stations, military posts and fortifications, the public health—at this half-way station between the occident and the orient. In asking let us cultivate the national spirit—readiness to bear our portion of any burden that may be required for the common good and, if need be, to do our part in the defense of our country through this outpost. The past augurs well for the future as to the work of our own legislature, and the responsibility rests on the people to make that what they will. Courtesy, adherence to law and efficiency as well as honesty must be exacted of every public officer. But, after all, what may be accomplished through governmental action depends in large measure upon the vigilance, energy and coöperation of the citizenship at large, and even then the sphere of governmental action is circumscribed,—as it should be. The government is not, ought not to be, and cannot be a panacea for all ills. Individual ingenuity and enterprise must be the mainstays of a people that would grow and be strong and free.

“Here in Hawaii are found such problems as exist nearly everywhere; these, though presenting difficult phases at times, need cause little anxiety. We may also expect to cope with the questions that arise out of the peculiarly cosmopolitan nature of our population—in the same spirit of justice toward all and freedom from race prejudice that has characterized the past. The question both of paramount importance and of superlative difficulty concerns the character of the future citizenship of the Territory as dependent mainly upon the immigration, labor, industrial, school and land policies. Shall the Territory be dependent upon a single industry, and that be conducted on the present plan, or shall the policies of homesteading, small farming and diversified industries, both manufacturing and agricultural, be pressed? It will be conceded that the Territory should not, if it can be avoided, keep all her eggs in one basket—especially when that basket’s upsetting is threatened by probable tariff revision. Doubtless, also, no unprejudiced person would deny that the highest interests of these islands require them to be peopled as far as may be by small landed proprietors. The dis-

puted ground lies in the possibilities of attaining these ends. The difficulties must not be underrated; the process by which they may be overcome will be slow; but true Americanism, as related to problems of this nature, consists not in waiting for something to turn up, nor in sound of trumpets, nor even in energetic action by traditional methods, but in vigorous action, it may be for traditional ends, by methods found through careful investigation to be adapted to the specific conditions. Faith in what may be accomplished by such methods is justified by the history of our present chief industry. For forty years before the reciprocity treaty that industry was a tottering infant with scarcely better prospects than have other industries at present, and even long after the advantages of the treaty began to be enjoyed one venturing to predict that that industry could eventually attain more than a small fraction of its present proportions would have been branded a visionary. If the success of that industry during the last quarter of a century has been due to anything outside of the free admission of sugar into the United States it has been due to the application of scientific methods to every phase of the industry except—it is to be regretted—its most constant and troublesome phase—that of labor. In the light of experience in that industry, and of the progress that obviously to any careful observer has already been made in the direction of homesteading and diversified industries, and the plain probabilities of favoring conditions in the future, it would be reckless to assert impossibility of overcoming the obstacles. Under these circumstances the supreme importance of the end calls for heroic effort toward its accomplishment even at the risk of failure. The aim must be for the highest class of citizenship possible. Japanese and Chinese citizens by birth under the constitution are growing ✓ to manhood and womanhood in constantly increasing numbers; it is no longer a matter of doubt that under proper training they will prove themselves worthy of their citizenship.

“Hawaiians and Portuguese form the bulk of our present citizen population; it cannot be questioned that they may become successful landed proprietors in far larger numbers than at present. ✓ To what extent Anglo-Saxons may become such, whether

tilling their own lands exclusively themselves or employing others to assist, is not so clear. The statutes should be amended, if necessary, to enable us to obtain in adequate numbers immigrants of desirable races; the highest types available and adaptable to local conditions should be secured; those reared here should be trained with reference to existing conditions. The difficulties, apart from questions of immigration, are mainly those of stability of crops, methods of cultivation and manufacture, irrigation, transportation and market. The limitations of the occasion forbids detailed consideration of these, whether as to progress already made towards the solution of each or as to favorable considerations for the future. The solution will constantly grow easier. The rapid filling of the great West will drive increasing numbers to these islands as settlers and tourists, and at the same time furnish a growing demand for our products. The expanding commerce of the Pacific, arising largely out of that growth of the West and the awakening of the East, aided by the construction of the Isthmian canal, will enlarge the market for the products of this pivotal point as well as increase its facilities of transportation out of all proportion to its separate importance. The development of harbors already begun will enable us to take advantage of these favoring circumstances and at the same time will encourage the building of belt lines of railroad about the principal islands. Such lines will remove one of the main obstacles now confronting the would-be settler, not alone by facilitating transportation to and from the seaboard and reducing its cost, but by affording means of conveying crops to central factories and furnishing the advantages of competing factory owners. Development of internal means of transportation will make possible the production for local consumption of much that is now imported in such enormous quantities. The Territory is under-populated; it needs development along many lines in proper relation to each other in order to reach the highest point of efficiency through division and combination of labor and capital. Changes that may at first seem inimical to this enterprise or that will in the end prove advantageous through the general upbuilding. Many of our lands do not require irriga-

tion; as to those that do, failure to devise feasible methods of irrigation for small proprietors would mean stultification in view of the recent reclamation project of the west, the ancient complicated systems of Hawaiian water rights, and reputed American ingenuity and enterprise. The Planters' Experiment Station, the Federal Experiment Station, the Bureau of Agriculture and Forestry, the College of Agriculture and Mechanic Arts, the special employment of experts and scientists in many lines indicate a disposition to pursue appropriate methods for discovery of suitable crops and methods of cultivation and manufacture. The public schools must be directed by the same spirit of inventiveness and adaptability in order to meet requirements by instilling into rising generations respect for manual labor and interest as well as instruction in agricultural and mechanical pursuits. The factors are many; all must be made to contribute. The more detailed the consideration the more feasible appears the object, but in general it would seem strange if the spirit that is converting what was once called the 'Great American Desert' into what is coming to be called the 'Bread Basket of the World' cannot insure success in a land of such salubrity of climate, fertility of soil, favorableness of location and natural attractiveness as these islands possess.

"The policies of small landed proprietorships and diversified industries are not necessarily antagonistic to the prosperity of the sugar industry. There is no inherent reason for opposition to that industry; every reason for aiding it. Probably nowhere are business enterprises, large and small, conducted more generally under corporate forms, but probably nowhere are they conducted more honorably or with less abuse of capitalistic power. The sugar industry is the proverbial goose that lays the golden egg—from which directly or indirectly the Territory and her people derive their main support. To destroy or seriously cripple it would deprive us of what we have and render us impotent to get what we want. If it were still in its infancy it would call for most strenuous efforts to bring it to its present extent and state of efficiency. Our policy should be constructive, not destructive, nor even substitutional except as to methods. Indeed,

far from being in opposition, the campaigns for small landed proprietorships and the sugar interests should be, for best results to each, in closest conjunction. It is not too much to expect this. Those in control of the sugar plantations are among the most public spirited of our people or of any people; more than that, they need the small settler as much as he needs them. The land laws must, of course, be applied liberally for the promotion of settlement and strictly for the prevention of speculation or of absorption into large estates, but these very objects demand that the laws shall be applied with due regard to facts. It would be fatal to those objects to divide among small settlers, as leases to plantations expire, sugar lands which would inevitably soon pass to the plantations in fee,—whether because purchased for speculation or because impossible of successful cultivation on a small scale under specific conditions of irrigation, transportation, capital or other difficulties. Until such conditions change, such lands should be leased to the highest bidders, thus securing revenue to the Territory, aid to the plantations, and, above all, the retention of the lands for purposes of settlement when conditions warrant. The lands most suitable for homesteading, whether cane or other lands, should be the first to be utilized for that purpose. When circumstances permit or require, the utilization of other lands for the same purpose will doubtless be found consistent with the prosperity of the sugar industry. Meanwhile those in control of the sugar plantations are in duty bound from considerations both of the public welfare and of self-interest to offer every aid possible towards the homesteading of suitable neighboring lands. Thus will be guaranteed both success to the small proprietor by providing him a sure source of income through the sale of products or labor to the plantation, and the advantage to the plantation of a change from an evanescent supply of labor requiring constant expensive replenishment to a permanent, efficient and economical, because a self-propagating and attached, supply. Even before annexation the contract labor system had largely disappeared; long since the purchase system, in one form or another possessing in some degree the principle of profit-sharing, has come into general

practice, with increased returns to both planter and laborer; more recently the planters have begun extensively to provide laborers with homes of sufficient size for resident and garden purposes; already a beginning has been made toward coöperation in various ways by the planters with the government in the establishment of homesteads of sufficient size to support families independently—in one noteworthy instance by the erection and operation of a central factory for canning pineapples raised by the homesteaders—the advantage to the plantation consisting in the certainty that a large proportion of the stronger members of the families will desire work on the plantation much of the time; it may yet, in the natural course of events, prove to be to the advantage of the sugar planters to have their operations confined to central factories, and their lands, whether now held under lease or in fee, subdivided and sold to settlers.

“‘The conclusion of the whole matter’ is that setting aside all meanness of spirit we should one and all proceed, with faith in the possibilities of high purposes, right methods and persistent and united effort, to the grand task of building up our fair Territory to the utmost in every possible way. Then will her political, social and industrial life be in harmony with the purity, beauty and grandeur of her azure skies, opal seas and richly variegated mountains and valleys.”

THAT Hawaii once held aspirations to coin money of and for her own realm is evidenced by the fact that estimates for a mint to coin a national currency were received here from London in the latter part of 1853, the expense of which was estimated not to exceed \$10,000, set up ready for use.

TRADITION credits the introduction of the bread-fruit tree in these islands to Kahai, a son of Moikeha, who brought a species from Upolu, in the Samoan group, on his return voyage from Kahiki, and planted same at Puuloa, Oahu.

CUSTOMS TABLE REVIEW, 1907.

THESE are readers of the ANNUAL to whom its Customs Tables are of that dry material as to be passed over with little if any consideration, yet who take a sufficient interest in the commercial progress of the Territory as to desire a knowledge of what it produces, and how much is realized from its exports. But to understand its status fully it is essential to learn what are our imports and their cost, or how much of our annual income is required to meet our obligations abroad in this business way. To all such, as to the statistical observer, the following analysis of the Tables of Export and Import, as shown on pages 22 to 26, will prove helpful to a clearer knowledge of the subject, and it is hoped to show that there are interesting and beneficial lessons to be learned therefrom.

Briefly, our total exports for the fiscal year ending June 30, 1907, was \$29,303,695, and the total imports for the same time was \$18,662,434, leaving a balance in our favor of \$10,641,261. This is less than the previous year's gain by \$713,689. Both exports and imports show increased figures, but while the latter realized \$2,308,871 over the exports of 1906, our importations increased more, the gain being \$3,022,560. Notwithstanding this growth in imports being larger than the growth of our exports, it is an improvement on the net result of the previous year, where the imports increased as usual, while the exports declined materially both in value and quantity. Two features brought out by the analysis show that the increased imports are largely for material benefits rather than harmful products as in 1906, and higher cost in several important lines rather than larger importations.

Of our main product, sugar, it is gratifying to note an improvement again in the annual output of raws, which, with the shade better prices obtained for the year, has realized \$26,860,002, a gain of \$3,019,199, the quantity exported being 804,249,041

pounds, or 91,688,044 more than in 1906, and making it, with refined, second in the annual list of sugar exports, both in quantity and value. In refined is noted a large falling off, which may be an indication of increased local demand for home consumption rather than a reduction of the refining plantation's output for the season. Molasses shows a slight advance, but with the closeness to which our sugar product is worked up nowadays, through efficient machinery and skill in the boiling-house, it is not likely to ever again appear to advantage among our exports.

Fruits again take second place in value of yearly exports, and while all kinds, grouped under the head of green (which comprise bananas, pineapples, and all other of our exportable tropical fruits), appears to have declined in value some \$16,035, canned pineapples has jumped from \$152,582 in 1906, to \$267,629 in 1907, and all other preserves has increased from \$2,521 in 1906 to \$10,441 the past year. Under this latter class is grouped preserved pineapples in glass, and the product of jams, jellies, chutney, etc., of local industry that is meeting with evident encouragement.

Coffee fell off nearly 50% in quantity the past year and with a shade lower in price there stands only \$128,875 for this product for 1907, as against \$248,593 the previous year. This is a larger decline than was last year's gain over that of 1905, and indicates it as having been coffee's off year.

Aviary products show also a decline, both honey and beeswax having fallen off materially, contrary to expectations and despite the commendable views of Dr. Wyle, the head of the pure food department at Washington, as to its quality. Possibly a larger local consumption may account for this.

Hides and skins, though but slightly increased in quantity of exports, show a gain of \$15,458 in value, the total for the year being \$141,883.

Wool shows an improvement both in quantity and value of exports for the year, being \$54,548 for 1907, as against \$45,883 for 1906.

Rice falls back again to a minor place in the list of domestic produce, the exports for 1907 being 3,324,107 lbs valued at \$147,-

439, as against 5,739,500 lbs. in 1906, valued at \$223,012. There is, however, to be noted an increase in the amount of foreign rice exported, thus relieving the local market somewhat for our own product, and this, too, has doubtless benefitted by the needed restrictions of fumigation on much of the imported article from Japan this past year.

Timber and unmanufactured lumber, under which head comes our new Koa lumbering industry, shows nearly \$13,000 benefit in exports for 1907. With the favorable report and encouraging orders for ohia railroad ties in hand and in prospect, in addition to the main business, marketing our koa, recognized as a furniture wood of the highest grade, the outlook is promising for the corporation's development of a business of magnitude, toward which its newly laid out railroad, penetrating the forest in the vicinity of the volcano, will make available a large tract of both koa and ohia timber.

Our fiber product shows a gain in the value of exports of \$5,348 for 1907 over that of 1906, and, as may be seen in an article on Sisal Industry in this issue, the outlook is encouraging for an increasing and profitable demand.

The foregoing covers practically the list of Hawaii's domestic produce and, though few in number, they are growing in importance and gradually increasing. A much larger list of articles figure in the table of exports that are termed domestic because of American product as distinct from foreign, but which are simply returned goods. The more prominent of these items are: Machinery, iron and steel, etc., \$98,145; carriages, autos and parts of, etc., \$19,688; books, etc., \$13,091, with a considerable list of minor importance.

In dealing with Importations our figures have to do principally with those from the mainland, for the want of detail tables of goods received from foreign countries, as has been remarked in previous issues, our source of information being the "Summary of Commerce and Finance of the United States," which fail to show such. Of the total value of imports for the year, amounting to \$18,662,434, all but \$4,151,709 represents the

amount of our purchases on the mainland, the latter sum being the amount of imports from all foreign countries.

As has already been shown the imports have increased more than did our exports, and stands now third in the annual list, 1901 and 1902 only exceeding it. (See table of Hawaii's Annual Trade Balance, page 28).

An analysis of the import list reveals some lessons of more than passing interest and, as has already been remarked, much of the increase is found to be in constructive or productive lines toward our development; and in not a few cases it is higher cost rather than increased quantity that is unfavorable to us. A comparative showing of the main items are as follows:

The total importations of iron and steel, and manufactures of, show an increase in value for the period under review of \$456,516. An examination of the several kinds under this head gives the following instructive figures:

Bar iron showed imports of 561,278 tons in 1906, valued at \$9,645. Last year we bought but 38,514 tons more, yet the value is placed at \$17,987. Bar steel imports in 1906, valued at \$9,645, increased to \$33,758 in 1907, the quantity for the past year having multiplied over five times. Sheet steel and plates show imports of 2,535,059 lbs. in 1907, at a value of \$86,495, an increase of \$21,414 over 1906. Structural iron and steel increased from \$33,899 in 1906, to \$41,885 the past year. Steel rails declined \$14,845 during same period. Machines, machinery and parts of, valued at \$601,147, is but \$30,500 over that of 1906. Wire jumped from \$12,208 value in 1906, to \$32,932 in 1907, the quantity imported this last year being 1,235,760 lbs.

Pipes and fittings show imports of 5,522,095 lbs., a little over twice the amount received in 1906, valued at \$211,390, favors us in price this past year. Stoves and parts of gains also nearly 50%, these items partaking of the extension of fuel gas in this city.

Brass and manufactures of show an increase in value of \$21,410, the imports for the year being \$45,776.

Bricks, for building, fell off 813 M. in quantity and \$7,374 in value in 1907, our needs apparently being covered by 515 M. at a

cost of \$5,366. Lime also declined from 81,575 bbls., valued at \$81,590 in 1906, to 54,043 the past year, at a shade higher cost, being valued at \$59,203. Of cement we took 9,040 bbls: in 1907, or 593 less than the previous year, valued at \$15,881, a saving of \$6,252.

Builders' hardware in its several lines increased in value from \$106,763 in 1906, to \$170,348 in 1907.

Manufacture of fibre, under which head is our bag imports, these show an increase of \$5,925 over the previous year. Cordage, valued at \$103,491 for the 829,445 lbs. required is 337,473 lbs. more than was received in 1906.

Electrical appliances, etc., jumps from \$71,141 in 1906 to \$104,857 in 1907.

Manufactures of marble, as also varnish, more than doubles in value their importations of 1906.

Tin plates, etc., valued at \$29,072 in 1906, increased last year to \$74,074, while manufactures of tin increased \$23,544, nearly doubling its import value of 1906; the effect of our increasing canning industry.

Fertilizer, and nitrate imports show a slight increase in the former, but a falling off of 25% in quantity of the latter, at a total value of \$1,023,878, a reduction of \$36,313 as compared with 1906.

Paper and manufactures of, shows as follows: Paper hangings increased \$1,762, and playing cards gained \$994. Printing paper declined in value \$1,159, yet the amount imported was 217,793 lbs. greater. Writing and wrapping paper increased \$18,884 for 1907, and all other kinds also increased \$56,020 over the values for 1906.

Wood and manufactures of, in total, shows an increase in value for 1907 of \$121,786. Segregated as to kind the exhibit is as follows: Sawed timber, logs, and other, fell off in value \$48,819: boards, planks, etc., increased in value \$98,225, though we received 430 M. feet less than in 1906. Shingles also show a less quantity at a higher figure than in 1906. Box shooks, for the canning industry, at a value of \$33,246, more than doubles that of the previous year, and all other kinds show a gain of

\$25,995. Doors, sash and blinds, gain \$16,609; furniture gains \$11,022; moldings, trimmings, etc., fell off \$4,328, while all other increases \$4,594.

Window glass increased from \$6,690 in value in 1906, to \$12,578 in 1907, and all other gained \$10,127 over the previous year.

Under the class, Provisions, may be seen to what extent Hawaii is dependent upon others for even the common necessities of life.

Imports of meat and dairy produce continue to grow steadily. This division passed the half million mark several years ago, the value in 1907 being \$616,282. The principal item in the list is milk, quantity of which is not given, but valued at \$147,614. Next in importance is butter, of which we received 435,233 lbs., of the value of \$130,015. Beef products declined over 50% from that of 1906; mutton also fell off considerably, but hog products, and game, held their own.

Our requirement of eggs, of which we received 53,845 dozen, or 451 dozen less than in 1906, cost us \$14,943, or \$1,948 more than the supply of that year.

Fish, all products, increased in value from \$247,954 in 1906, to \$271,673 in 1907, the most notable being canned fish other than salmon and shell fish.

Vegetables increased in value from \$157,370 in 1906, to \$202,526 the past year. Of the few kinds enumerated beans and peas fell off \$5,030. Onions increased \$3,000. Canned vegetables increased \$15,149, and potatoes increased \$31,361 in value, though we received but 791 bushels more than in 1906, the receipts this past year being 90,235 bushels, valued at \$86,982; this, too, from a State that we used to supply the same article by the schooner load.

Rice from the mainland fell off considerably the past year, being but \$34,144 in value as against \$164,863 in 1906, when we received 4,129,643 lbs. Rice from Japan, we believe, has also suffered decline both in quantity and value, but the tables show no detail.

Salt evinces a slight gain in value of \$1,926, though for 26,916 lbs. less quantity than the previous year.

Starch, an article we should be producing for local consumption and export, as was done in the early sixties, cost us \$15,677 last year as against \$9,657 in 1906.

Fruit:—The value of receipts of dried and fresh, or green fruits, in 1906, was \$108,326, and \$135,760 in 1907; an increase of \$27,434. Of canned and other preserved, the value of imports was \$37,824, a gain of \$15,213 on that of the previous year, making a total increase of \$42,647. Of the above fresh fruits it is noted that oranges figure first in the list in value, and has done so for several years past, the yearly imports for 1905, 1906 and 1907, being \$45,379, \$41,034, and \$46,222, respectively, an amount which if devoted to encouraging our own choice product would materially assist the "small farmer" theory.

Hay tells against us heavily from its higher cost the past year. Our imports of 9,727 tons, valued at \$188,087, is but 479 tons more than was received in 1906, yet the difference in value over that year is \$55,964. Fortunately the result is not the same with our grain receipts, prices ranging lower, if anything, on all kinds, including flour, of which latter there was 106,715 bbls. imported, being 2,572 bbls. less than in 1906, at a total value of \$424,169.

Molasses and syrup shows a slight gain, while refined sugar nearly doubles that of 1906, which was 1,185,559 lbs., valued at \$58,644, as against 2,106,958 lbs., valued at \$93,969 in 1907. This doubtless has connection with our diminished export of this grade already mentioned.

Lines more of the luxury and comfort class make the following showing:

The value of automobiles and parts of, imported in 1906 was \$107,266. In 1907 we received 104 automobiles, valued at \$162,769, and parts of, to the value of \$8,224; a total of \$170,993. With all other kinds of cars, carriages, etc., the increase on each is general, to a total value of \$55,997.

Books and other printed matter showed \$58,037 for 1906. Last year the value of imports under this head was \$85,023; a gain of \$46,986.

Chemicals, drugs, etc., increased \$291,953 in value of imports

from the mainland, without considering the supply of this class from Japan, which is said to be steadily increasing.

Clocks and watches shows \$14,455 for 1906; this increased the past year to \$19,215. Jewelry, etc., for the same time fell off from \$83,665 to \$7,237. The value of our imports of this class of goods in 1905 was \$186,465. Plated ware also declined the past year \$8,270. Lamps, etc., other than electric, has jumped from \$16,131 in 1906 to \$39,059 in 1907.

Manufactures of cotton, in bleached, unbleached, printed, etc., gained \$439,576 over 1906, the imports that year being 4,069,559 yards, valued at \$304,833. In 1907 we imported 11,386,708 yards, valued at \$744,409. Wearing apparel, under this head, also gained \$248,271 over like imports of 1906. Silks advanced from \$39,539 in 1906 to \$54,744 this past year.

Boots and shoes have increased to 195,036 pairs in 1907, at a value of \$342,878, being \$156,264 over that of 1906. Sole and upper leathers show increased consumption and value to the amount of \$33,172, or nearly 40%. Saddles and harness gained nearly one-third, as did also all other leather manufactures.

Earthen, stone and chinaware increased from \$29,411 in 1906 to \$60,216 in 1907, a difference of \$30,805.

Metal furniture increased from \$6,546 in 1906, to \$11,852 in 1907.

Manufactures of rubber increased \$19,210 for the past year, this difference being in other than belting, hose, boots and shoes.

Gunpowder and other explosives show a falling off of \$14,525.

Oils:—Crude increased in quantity of import 11,289,700 gallons, yet a reduction in cost of \$297,058. All other kinds show an increase in value of imports, but a decline, in total, of \$237,486 for the year.

Soaps improve in value \$11,705 over 1906, but for a less quantity.

Tobacco, Etc.—Cigars show a gain in value of \$26,620 for 1907, and cigarettes a gain of \$38,982. Plug and other shows a decline of \$9,420.

Toys have increased nearly 40%; the import value in 1907

being \$26,489. Trunks, valises, etc., also increased the past year to \$28,704, as against \$15,575 in 1906.

Wool, manufactures of:—Dress goods do not show material change in value, but less in quantity. Carpets increased \$1,862; flannels and blankets \$15,860; wearing apparel, \$27,292, and all other \$23,490.

Malt liquors show an increase of \$29,625 in the value of imports for 1907, and distilled liquors also show a gain of \$3,219, while wines declined \$15,114 for the year.

Taken altogether the exhibit indicates a very satisfactory condition of the commerce of the Territory.

A LONG FLIGHT.



ON the departure of the U. S. Army transport *Crook* from Honolulu, with the Tenth Regiment, for Alaska, last June, a carrier pigeon was sent in care of an officer for release upon arrival at their destination. The bird returned to its quarters here on the morning of July 30th, 1907, bearing the following message:

"St. Michael, Alaska, July 16th. *Crook* arrived 10 a. m., all well on board."

A note was also appended signed by Capt. Hanson, of the S. S. *Helen*, showing that the winged messenger, tired by its long journey, had rested on his vessel July 24th. Unfortunately the location of the ship at the time was not given, whereby the correct distance of its eight days' flight could be ascertained. Upon its arrival home it did not appear unduly fatigued for the long passage of some six thousand miles, but seemed in perfect condition.

This will probably be found to be the record long distance flight of the homer pigeon, for an average of the whole passage allows 429 miles a day, which would show the bird to have traveled about 3,400 miles when it fell in with the *Helen* for a rest en route.

AN EARLY ASCENT OF MAUNA LOA.

Extract from "A. Menzies' M. S. Journal, in Vancouver's Voyage, 1790-1794."

BRITISH MUSEUM : MS. DEPARTMENT.

(This is said to be the first time this account appears in print.)

FEB, 24, 1793.—“Early on 24th the Observatory markee and a small tent, with the astronomical instruments, were sent on shore and erected close to the Morai (heiau), on the same spot where Captain Cook stood fourteen years before. The party, consisting of a guard of six marines, were under the command of Mr. Whidbey, who was to make the necessary observations for ascertaining the rates of the time-keepers which were also landed for that purpose.

In the morning the king came on board, with his queen and two of his ihannees (aikanes), and went on shore again in the forenoon with Captain Vancouver, Mr. Paget and myself, in the pinnace, but no other canoes came alongside either of the vessels till near noon. We landed in the pinnace close under the Morai, where, it seems, the shore was tabooed from women, in consequence of which the queen was obliged to take a canoe and land in another place. We first went to see the encampment, which was pitched in a small field adjacent to the Morai, and the king particularly requested that none of our people should go nearer the Morai than the walls of the field, which was particularly tabooed for our use, and Mr. Whidbey promised him that his injunctions should be strictly observed. As we passed from thence to the village we saw the cattle screening themselves from the heat of the sun under the shade of the cocoa-palms; we likewise saw the bull in a shady place, but he was so weak that he could not yet stand upon his legs, as they said; he could,

however, eat and drink pretty well; there were some hopes of his recovery from his appearance, tho not very flattering.

After this the king took us to his own house, which was pretty large, and the floor covered all over with mats on which we sat down and refreshed ourselves with cocoa nut liquor, while four marines that followed Captain Vancouver through the village, as a guard, were drawn up in a small court before the entrance, and at the king's particular request, went through their manual exercise, while he attentively eyed their various motions with great satisfaction. At the further end of the house we observed upwards of two dozen muskets which the king said he lately procured, in the way of traffic, from Mr. Brown, master of the ship "Buttersworth" of London, and added that they were so very bad that some of them burst on the first firing, on which account they were now afraid to fire any of them off.

On returning back to the tents we perceived that a considerable space of the shore near the Morai was tabooed for our convenience, where anything might be landed from the boats in safety, free from the teasing curoosity and pilfering disposition of the natives; and it is but justice to say that the king had hitherto taken every precaution to preserve peace and good understanding between us, by adopting every method that might prevent his people from giving offense, for on the day we came into the bay he requested that none of his people should be suffered to go on board the vessels, not even his chiefs, excepting those he desired; otherwise he could not be answerable for their conduct, which, I believe, was in a great measure complied with.

* * * *

"As I was particularly anxious to examine the interior parts of the country, in a journey up the mountains, it was this day mentioned to the king, who was no sooner made acquainted with my pursuits, than he readily consented, and as an encouragement to the undertaking he promised that he would send particular people along with me, to conduct and protect me, and to supply me, during the journey, with everything the country afforded. Under these circumstances I was under no apprehensions as to my own safety and therefore told him I should be

glad to set off the following morning and trusted he would make the necessary arrangements for that purpose.

On shore we met another Englishman named John Smith, who had been upon the island about three months; he landed from an American vessel that was going to the Northwest coast for furs, on account of ill usage. He had since mostly lived with the king, who made him a chief of the island and gave him a portion of land to support his dignity in that capacity. When this man understood that I was going a journey up the mountains, he eagerly offered to accompany me, and as he was likely to be better acquainted with the country and the inhabitants, I accepted of his offer, which the king approved of and entrusted him with the power of providing for the party wheresoever we went.

Next morning, the 25th, I left the ship pretty early, accompanied by one of the gentlemen, Mr. John Stewart, who was desirous of satisfying his curiosity in seeing the interior parts of the country. At the village of Kakooa we were joined by John Smith and a group of attendants loaded with necessaries for our intended excursion, such as cloth, and mats to sleep on at night, live pigs, fowls and dried fish, with other articles of provision, sufficient for a week's consumption, and as for vegetables or any other thing we should want, Smith had unlimited powers given him to supply us from any plantation we went through without even asking the owner's leave.

The forenoon was far spent in arranging and equipping the party before we left the village, and as our route lay directly back from it, over a dry, barren, rocky country, up a steep ascent in the scorching heat of the day, the first part of our journey was rather fatiguing, before we gained the summit of the eminence over the bay, where we met a refreshing breeze, and had an extensive prospect of the country and villages to the southward of us, the tract which extended along shore, if we might judge from its appearance, and our knowledge of that which we had already traveled over, we were ready to pronounce it a dreary, naked, barren waste, if we except a few groves of cocoa palms here and there, near the villages, but that which stretched higher up, along the verge of the woods, from the manner in which it

was industriously laid out into little fields, exhibited a more pleasing and fertile appearance.

On leaving this station we soon lost sight of the vessels, and entered their breadfruit plantations, the trees of which were a good distance apart, so as to give room to their boughs to spread out vigorously on all sides, which was not the case in the crowded groves of Otaheite, where the trees were drawn up tall and slender, and where we found them always planted on the low plains along the seaside; but here the size of the trees, the luxuriance of their crop and foliage, sufficiently show that they thrive equally well on an elevated situation.

The space between these trees did not lay idle; it was chiefly planted with sweet potatoes and rows of the cloth plant. As we advanced beyond the breadfruit plantations the country became more and more fertile, being in a high state of cultivation; for several miles round us there was not a spot that would admit of it that was not with great industry cleared of the loose stone and planted with esculent roots or some useful vegetables or other. In clearing the ground the stones are heaped up in ridges between the little fields and planted on each side, either with a row of sugar cane, or the sweet root of these islands (*Dracena ferrea*, Linn.), where they afterwards continue to grow in a wild state, so that even these strong, uncultivated banks are by this means made useful to the proprietors, as well as ornamental to the fields they intersect.

“The produce of these plantations, besides the above mentioned, are the cloth plant (*Morus papyrifera*, Linn.); taro, and sweet potatoes; the latter are here planted three or four feet apart and earthed up round their stems much in the same manner as the common potatoes are treated in England, and when they dig any up we remarked that after stripping off the potatoes they carefully put the old plant again in the ground for the ensuing crop. But the taro, being naturally an aquatic plant, required, in this dry soil, a very different treatment; there were generally two or three of them planted together in a hole, about nine inches below the surface of the ground, and these holes were about four feet apart, and as the plants grow up the

earth is gathered round their stems, in the form of a basin, to retain the water, either from rain or otherwise, about their roots, and the whole field is generally covered with a thick layer of hay made from long, coarse grass, or the tops of sugar cane, which constantly preserves a certain degree of moisture in the soil that would otherwise be parched up by the scorching heat of the solar rays, and in this way they rear up these roots to very great perfection, even on a dry, elevated situation.

“These plantations being on a gentle declivity we continued our course through them till we ascended near the verge of the woods where we found two or three small huts that were inhabited, in one of which we took up our abode for the night, our distance from the vessel being about six or seven miles. In a small spot neatly railed in with reeds before the entrance of our hut we discovered about a dozen young orange trees growing very luxuriantly; on enquiring we found them to be part of those seedlings which were given to Tooworero when he landed last year and which he very prudently shared amongst different chiefs; these had fallen to the lot of Skeehevarero, the chief of Kavarooa, on whose ground we now were, and a finer climate or a more suitable situation we are certain they could not be placed in, and therefore trust that they will soon arrive at that perfection that their fruit may, in a few years, prove a valuable acquisition to the natives, as well as to those vessels that may touch here for refreshments.

“The land here is divided into plantations called heree, which take their rise at the seaside and proceed up the country, preserving a certain breadth without any limitation or as far as the owner chooses to cultivate them; and without the protection either of high walls or gates the produce of these fields is as secure from molestation as if they were barricaded with the most formidable barriers, for the people that accompanied us durst not, without obtaining our leave, even touch a sugar cane though they grew everywhere, on both sides of our path, in abundance, and as it were, in a wild state. Indeed, without such salutary laws and great industry, it would be impossible for these islands to maintain such a numerous society, for it has often surprised

us from viewing only the small spots cultivated about their villages near the seaside, in what manner such a vast number of inhabitants subsisted and have wherewithal to spare in such abundance to strangers who touched here for refreshments, and who of late years have been very numerous.

“But seeing now these upper regions so industriously cultivated and teeming with productive crops, we could no longer remain ignorant of their vast resource, and we are certain that nothing but wars—destructive wars and commotions can ever reduce them to scarcity, seeing they thus avail themselves of nature’s bounty in the conformation of their country, by extending their cultivation to different regions of the air, they secure a continued succession of crops and therefore can never be destitute of supply.

“The climate in this elevated region appeared to us exceedingly mild and pleasant; a slight shower of rain that fell, towards evening, helped to show that the fields had already felt the vivifying powers of spring, and gave a refreshing lustre to that scene of industry and rural economy which lay before us and which terminated, by a long and gentle slant, in a boundless ocean. While we were thus gratifying our eyes with this vast and interesting prospect before us, the woods behind us resounded with the wild melody of numerous warblers that formed a shrill, heterogenous concert by no means displeasing to our ears.

“While we were taking our repast in the evening we observed the natives pay particular attention to John Smith, for fear, as he was a chief, he should in the least transgress their usual forms of eating and drinking, from living in company with us; he was allowed to make use of nothing but what had been consecrated at the Morai before we came away, and when he began his meal, besides the light we had in common, a consecrated light was kindled before him, which was carefully attended, as it must not go out while he was eating; at the same time all the natives cowered down and none of them durst get up, or move from the place they sat in, till he was done, and then every atom of his leavings—bones and all, were carefully picked up and burnt in the fire, as there was nobody present that durst make use of them.

"During this time, too, the women had all left us, so that while we enjoyed every liberty of eating and drinking, when, where, and how we pleased, he was restricted to particular forms and rules and so narrowly watched that he could not even chew a sugar cane as we were coming up the path, because it had not been particularly consecrated. This made him sometimes break through these forms, in a violent passion, cursing and swearing at them and their taboo, too, which always threw them into the greatest agitation, trembling with fear and horror, that I was frequently obliged to interfere and entreat of him to be more circumspect of his new chieftain's dignities, for fear of any disagreeable consequences.

"Before we set out next morning, the 26th, a party of the natives from Karakakooa passed our hut, who were going up to the woods with calabashes and a small cask, to fetch water for our vessels, which shows that the vicinity of the bay is but badly supplied with that necessary article. One of these natives, who met us the day before, going down under a heavy load of calabashes full of water, showed us three small iron nails he got for his labor, with which he seemed very well satisfied; and if we consider the great distance he carried it, over a rugged path in the heat of the day, it proves that this metal still holds a high value amongst them, and that a settlement established at these islands would in this way procure indefatigable laborers at a very easy rate; and how far preferable this would be to that disgraceful mode of slavery by which we still continue to cultivate our West India Islands; in short, it might be well worth the attention of government to make the experiment and settle these islands by planters from the West Indies. Men of humanity, industry and experienced abilities in the exercise of their art would here, in a short time, be enabled to manufacture sugar and rum from luxuriant fields of cane equal, if not far superior, to the produce of our West Indian plantations, and that, too, without slavery; by merely cherishing that tractable principle of industry and labor in the inhabitants they might be gradually led on to perform every duty belonging to a plantation, with the greatest ease and cheerfulness and at very little expense, which would

certainly be much more satisfactory to the employers and to the world at large than if they ground under the galling yoke of slavery, which God forbid they ever should. They possess ingenuity, industry and abilities in an eminent degree, and the only thing wanting is mildly to guide these into a proper channel to render them useful to themselves and mankind in general.

"After breakfast we pursued our course onward with a fair prospect of a fine day, and soon after entered the wood, by a well-trodden path, on both sides of which were luxuriant groves of plantations and bananas, reared up with great industry in the neatest order of cultivation; these being tender vegetables, required a sheltered situation and good soil, to bring them to perfection, and here they enjoyed both, in a suitable climate—the soil being chiefly formed from the long and continuous falls of decayed vegetables mouldering away by the process of time, and the busy operations of nature, was rendered excessively rich and would, we are certain, at this height, be capable of producing in perfection most of our English wall fruits, as well as most of the European esculent vegetables.

Every step we advanced through these plantations became more and more interesting, as we could not help admiring the manner in which the little fields on both sides of us were laid out to the greatest advantage, and the perseverance and great attention of the natives in adapting to every vegetable they cultivate, as far as lays in their power, its proper soil and natural situation, by which their fields, in general, are productive of good crops that far exceed, in point of perfection, the produce of any civilized country within the tropics.

"Having advanced beyond the plantations we found the wood, apparently thinned of the larger trees by the inhabitants, was yet so thick and crowded with long fern and brushwood as to be almost impracticable except by the path we entered, which still continued good, and which we pursued, passing two small villages which were inhabited, consisting each of a few temporary huts, and we took up our quarters for the night, at a third village, a little beyond them, where, on our arrival, a small hut was cleared and it was instantaneously renovated with fresh thatch of

fern and plantain leaves, and new floored with long grass on which a clean mat was spread, and we found ourselves very comfortably sheltered, about twelve miles distant from the bay. Some showers of rain that fell towards the evening sensibly cooled the air and left a dampness in the woods with which we were now closely surrounded, that it made it a necessary precaution to keep up a constant fire before our hut, to prevent its baneful effects during the night-time.

“Our ascent this day was considerably retarded by my botanical researches on both sides of the path when any favorable spot occurred, where the woods were penetrable, and the rainy appearance, too, induced us in some measure to take up our quarters early, as our guides informed us that we could not get any place of good shelter beyond our present situation.

“Many of the numerous ferns which composed the denser parts of the wood were known to me and are common to other tropical countries, but most of the trees and shrubs that made up this vast forest were, from their appearance, entirely new to me, and many of them, I believe, peculiar to these islands. I therefore diligently searched for their flowers and their fruits in order to be able from thence either to ascertain or describe them, but few of them being at this time in bloom, my researches were in a great measure fruitless, on which account I could not help considering my situation as the most vexatious and tantalizing that a scrutinizing botanist could ever be placed in, surrounded on all sides by new and rare objects and yet destitute of the means of obtaining a knowledge of them, by not being able to visit them at different seasons of the year; but such is the situation in which a transitory visitor must often be placed with respect to botanical pursuits.

“The villages we passed, in the wood, I said were temporary, as the occupiers, consisting of a few families, had come up here only for a time to pursue various occupations.

“The men were differently engaged, some in felling of large timber for various purposes, others in hollowing out and forming canoes and planks in the rough, which after laying some time in the wood, to season, were dragged down, in that state, to the sea-

side, to be finished by their canoe builders who are distinct persons from those who thus form them in the rough; while a third set seemed to have no other occupation than that of catching small birds for the sake of their feathers, especially those of a red, yellow, or black color; these feathers are in great estimation; it is with them that a large portion of the rents are annually paid to the chiefs by the lower class of people, who thus employ themselves by catching the birds with bird-lime, which they do by spreading a little of it here and there on the boughs, and placing two or three red berries near it, which the birds are very fond of, and as they perch to eat them they are entangled with the bird-lime. But the natives are very cautious of not exterminating the birds by killing all that are in this manner caught; many of them, after being stripped of their most valuable feathers, are again set at liberty, and run the chances of being fleeced in the same way next year.

“The women were no less assiduously in collecting and manufacturing the bark of a shrubby species of nettle which grew wild in the woods, for making a kind of coarse russet cloth, and which they prepared and dyed as follows: The inner bark being separated from the long twigs, the exterior rind was made up into small bundles, and a certain quantity of a particular kind of fern—a species of *Adiantum*—mixed with it, and both wrapped up together in the leaves of plantains or the *Dracæna ferrea*, Linn.

A number of these bundles being in this manner got ready, an oven is made by digging a hole in the ground, where they are put, intermixed with hot stones, and covered up with green leaves and earth, in the same manner as they dress or bake their victuals. By this heating, or sweating, process the fern imparts a reddish brown color to the bark, which is afterwards beat out into cloth.

After breakfast on the 27th we continued our journey up the mountain, and as we advanced we found the path become more and more rugged, with numerous dead trees laying athwart it in every direction, which made our progress slow and tedious; the wood continued close and impervious on every side excepting by little tracks here and there, where cut-down trees, or canoes, had

been dragged into the path to take them down to the seaside; the largest trees which composed this vast forest I now found to be a species of mimosa, with certain leaves somewhat similar to those of New Holland; its wood is hard and close-grained and takes a very fine polish, as may be seen by the canoes, of which they are always made; it is, perhaps, the largest tree that has yet been discovered, of the genus. I measured two of them near our path, one of which was seventeen feet, and the other about eighteen feet in circumference, with straight trunks of forty or fifty feet, and strong, bold, spreading branches.

"As we advanced the wood was more crowded with these trees, than lower down, where both sides of the path had been thinned of them by the inhabitants. I found here a species of *Rumex* that frequently climbed up these trees to at least forty feet high, whose pendulous branches and large leaves and bunchy flowers were very ornamental. I named it '*Rumex giganteus*,' and was happy, on my return to England, to find that Mr. Aiton had succeeded in rearing fine plants of it at Kew, from the seeds I sent home for His Majesty's garden.

"After ascending, with great fatigue, four or five miles further, we came to the end of the path, beyond which it was impossible to penetrate, from the density of the forest, which was everywhere closely filled up with underwood and luxuriant ferns. We therefore erected some huts here and encamped for the night, and while the operations for this purpose were going forward I employed my time in botanical researches on both sides of the path, sending the natives up the trees, or into the wood as far as they could penetrate, for every kind of flower and seed they could collect. We found near the head of this path a spot clear of large trees but covered with a great variety of low shrubs, among which was a new species of *Vaccinium*, with red berries, which, on comparing, we found to be those used lower down by the bird-catchers. Though this spot was not very extensive it afforded us the most interesting of our collection of plants in this excursion. Among them we met with a new species of raspberry which was pretty common at this height of the mountains. We estimated our distance now to be about sixteen miles from the

bay, on a gradual ascent towards Mawna-roa, and tho we climbed up some high trees to look round us we could see nothing like that described in Cook's Voyage, of alternate woods and clear spaces, on this side of the mountain; there was nothing within the verge of our sight but one vast and continual forest.

"So bigoted are these people to their religion that here and there, on the sides of the path, they have little *Morais*, or spots consecrated to their Deity, which none of them ever pass without leaving something—let it be ever so trifling—to obtain his good will, and they were highly delighted, indeed, when we followed their example in throwing a nail or a few beads, or a piece of tape, before their Deity, which the women were not allowed to pass without uncovering their breast and shoulders.

"During the night time we found it very necessary to keep a large fire burning before our huts, as we felt the cold much more piercing than on the preceding evening, tho not to the degree we expected from the report of those who ascended this side of the mountain in Captain Cook's time, for before sunrise, in the morning, which is generally the coldest time, the thermometer was only at 52 degrees.

"After taking some refreshments, on the morning of the 28th we set out on our return home, by the same path we had ascended, till we came nearly out of the wood, and then struck off by a path that went a little more to the southward of our former, through plantations in the highest state of cultivation; every field bore the marks of indefatigable labor, perseverance and industry, which they were now amply repaying by productive crops, but as we came down towards the seaside we walked over the most barren, rocky country that can possibly be conceived, composed of nothing but rugged cavernous lava full of chinks and fissures that made it both dangerous and difficult to travel over.

"We arrived at a village, in the afternoon, called Hananou (Honaunau), on the seaside, about two leagues to the southward of Karakakooa Bay. As we approached it the natives came out in great crowds to meet us, the young women expressing their joy in singing and dancing from every little eminence, to entertain us, while the men received us with a clamorous welcome

and an officiousness to serve us that would have been troublesome and teasing, had they not been kept in good order by John Smith and the natives who accompanied us, who exercised their authority by clearing an avenue for us whereon we went.

"They took us to a large house that was tabooed for the king, with a number of smaller houses contiguous to it for sleeping in and for his attendants when he comes to the village, and we were told that he had a set of houses kept for him in the same way, in every village he is likely to stop at round the island, which, when he once occupies or eats in, cannot afterwards be used by any other.

"Here clean mats were spread for us, to stretch ourselves out on after the fatigue of our long journey in the heat of the day, while a number of the natives placed themselves round us to roomie and pinch our limbs, an operation which we found, on these occasions, very lulling and pleasing, when gently performed.

"Cocoa-nuts, plantains, and every kind of refreshment which the country afforded, were got ready and supplied to us in abundance, and in justice to the friendly and hospitable disposition of the natives, we must observe that during this excursion our wants were often anticipated and provided for with the utmost alertness the moment they were known; they took care of everything we had and behaved towards us with a scrupulous honesty that we could not help admiring. Every one of our own followers had his post of trust allotted to him when we set out on the journey, and in no instance did any of them betray the confidence reposed in them, but performed their duty with fidelity and ease.

"In the evening a double canoe arrived from Karakakooa with several empty casks in her which the chief of the village had undertaken to fill with good water for the "Discovery," and at the dawn of day, next morning, we heard the cryer go through the village summoning all the natives to set out for the mountains to fetch water to fulfill his contract; and, in a large Morai close to us we now and then heard the hollow sounding drums of the priests who were up in the dead hour of the night performing their religious rites.

"As the country along shore was so dreary and barren with picked rocks of lava, we engaged a large double canoe to carry us to Karakakooa, where we arrived on board the 'Discovery' in the forenoon of the 1st of March, and found that the main-mast which the carpenters began to fish before we went away was now finished, the rigging overhauled, and the ship nearly watered, but the sails were still unbent."

WAIKIKI SURF RIDING.

THIS picturesque sport, unknown outside of these islands, steadily grows in attractiveness to beholder and fascination to participants. It is one of the charms and attractions of Waikiki, a locality famed of old for the suitableness of its surf for such aquatic contests. Its proximity to Honolulu enables many of the young people of this city to familiarize themselves with this sport, first in canoe, then with board, and who in turn delight to initiate strangers in its intoxication.

Thus was Alexander Hume Ford, the writer, introduced to its charm this past summer by young Freeth, who had so mastered its intricacies as to be recognized as an expert. Ford entered quickly into the spirit of surf riding, and in his enthusiasm he sought to formulate the principles of the sport, and mastered it to that extent he instructed and enthused others to their great delight. Among those who were thus fortunate to be let into the mystery of its principles to master its difficulties and participate in its exhilarating pleasure was Jack London, whose experiences of the first day's lessons are told in a late Eastern journal by him while he was done up in cotton batting from the sun-burn he suffered, so fascinated had he been with the new pleasure that he lost all regard for time's consequences under a tropic sun. But like Ford he is won to the unequalled delights of surf-board riding in Hawaii, and will familiarize world-wide readers with this attractive sport, once so universal throughout the islands, and one of the all-year-round charms of sea-beach bathing at Waikiki.

LAVA TREE MOLDS AND LAVA STUMPS.

BY REV. W. D. WESTERVELT.

THE lava thrown out by the volcanoes of the Hawaiian Islands has innumerable forms. Its five great varieties, however, are pahoehoe or comparatively smooth lava; a-a or broken, ragged lava; oni eleele or black sand; cinders which are like vast masses of refuse from blast furnaces, and sometimes a large amount of what is called volcanic mud thrown out when water is mixed with ashes and cinders and the eruption is somewhat geyser-like in character.

Tree molds and lava stumps are found almost always in pahoehoe alone. When pahoehoe is pouring forth quickly and in enormous quantities it soon overflows a large area of land covering it with layer after layer of smooth hard lava which cools very quickly. Pahoehoe is apparently very hot and in a liquid state, and yet after it is exposed to the air it quickly solidifies into whatever shape it happens to assume at that time.

In many places throughout the Hawaiian Islands the pahoehoe flows, both ancient and modern, have come down upon groups of trees or forests. Of course the intense heat of the flowing lava stream usually burns up everything which lies in its path, but lava which is being pushed off to one side or the other is undergoing a cooling process and rapidly hardens.

Under such conditions the lava which first strikes a tree is so far cooled that the green wood and sap against which it flows act as a quick chill upon the cooling mass and it is solidified instantaneously around the tree trunk. In this way both stumps and molds are found in great masses of lava to the surprise of those who make a study of the various conditions affecting Hawaiian eruptions.

It would seem at first glance as if a mass of lava ten to twenty feet thick and sufficiently liquid to continue flowing would contain heat enough to burn anything with which it came in contact, but this was not the fact. There are many places in the islands,

and especially on the Island of Hawaii, where lava has cooled around a standing tree, burning the bark and perhaps the outside portion of the wood, thus killing the tree, but leaving the dead trunk standing in its jacket or prison of lava. After a long time the dead wood has rotted and the debris has fallen to the bottom, leaving simply the mold of lava which has been cast around the trunk. This mold extends from the surface of the flow to the ground over which the lava originally forced its way.



TREE MOLD AT KILAUEA.

any escaping gases which have been flowing along with the molten rock. These gases carry cinders and fragments of lava as they burst forth. In this way mounds have formed around the openings of some of the tree molds, changing the general appearance so that the previous existence of a tree mold would not be suspected except for the depth of the hole and its close connection with other molds.

Usually these deep holes in a lava flow occur individually rather than in numbers, but there is a very interesting group on the edge of the koa forest not far from the northern brink of the volcano Kilauea and about two miles from the Volcano House.

Looking down these holes the observer can frequently trace the marks made in the lava while pressing against the bark or wood of the tree. Sometimes the heat has been continued underneath the cooled lava surface and has dried the tree, finally setting it on fire and burning it to ashes, leaving the mold as a blow hole for

An ancient eruption, probably from Kilauea rather than from the summit crater Mokuaweoweo, on Mauna Loa, poured forth a vast quantity of pahoehoe which covered the ground to a depth of from fifteen to twenty feet, engulfing a number of trees.

There is a large koa grove by the open glade in which the Kilauea tree molds are found, growing apparently on the surface of the thick pahoehoe deposited over all the surrounding country. Some of the molds are of such size and character as would naturally come from immense koa trees. They are five or six feet in diameter. Koa is the Hawaiian mahogany. It is a curly, fine-grained, very hard wood, and would burn very slowly and might readily cool a mass of sluggish lava flowing against it.

Tree ferns have taken root in some of these deep holes, finding life in the debris coming from the decay of the destroyed trees. Some of these ferns have grown until their tossing plumes fill the mouth of the tree mold, yielding gentle motion to the touch of the passing breezes.

These koa casts are very interesting, yet very close to them are much smaller openings. These are only a few inches in diameter and the hole, although very deep is very slender, presenting all the characteristics of coconut trees around which the pahoehoe has placed its impression. There are about twenty well-defined tree molds and others more or less perfectly outlined, beside mounds which, if opened, would probably show holes overgrown by ferns and grasses.

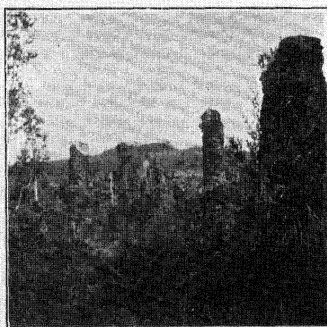
This peculiar group of tree molds or deep holes in an ancient lava flow is one of the most interesting places to visit in the neighborhood of the great crater Kilauea, for a sounding line will show the thickness of a lava flow which was sufficiently cool to chill into stone around trees, while the characteristics of the engulfed trees can also be studied.

On the Kau side of Kilauea along the slopes of Mauna Loa are many holes in lava resulting from the decay of trees which have been killed in the manner described. In them new life is starting and the world old story of life rising from death is told in a lava field.

Another peculiar form of a cast or mold is found here and

there throughout the islands. The lava flowing underneath a cooling surface burned a tree up to the surface. That part of the trunk which stood above fell on the cold lava. After a few minutes a portion of the flowing lava beneath found a weak place in the crust and gushed forth, covering the fallen tree trunk, hardening almost instantaneously, making an excellent cast. Such casts in the surface of a lava flow are to be found in the district above Hilo, known as Kaumana.

A very curious eruption took place some years ago on the edge of Kilauea iki, a small extinct crater connected by a narrow passage with the great crater. An eruption broke forth with great violence near the top of the crater wall. It shot out like an immense spurt of water upon trees below, depositing bunches of lava in the branches and then falling in a mass around the trunks and roots. This lasted but a few moments, then a crack opened into the wall of Kilauea iki more than a hundred feet below and the rest of the lava partly poured down the sides of the crater Kilauea iki and partly flowed into the large crater of Kilauea. This deposit in and around the trees came from above them and is entirely different in its character from the deposits forming either tree molds or tree stumps.



LAVA TREE STUMPS.

About twenty-five miles south of east from Kilauea, in the district of Puna, is another place of great interest to the student of the battle between forests and volcanic eruptions. Here are to be found hundreds of lava tree stumps which are the opposite of the tree

molds. They are casts built up in the air rather than down in the lava. In both cases all that is left is the shell in which a destroyed tree made its last struggle for life.

These stumps appear like an army seized while standing and petrified into enduring stone. They are objects of great curiosity and conjecture. They are scattered over quite a large extent of territory and appear to have been made by different eruptions. They rise from one to even fifteen or more feet above the surface of the lava.

At first thought a careless observer would say that these stumps were made by a subsidence of lava leaving the cold mass standing as it had hardened around the tree whose ashes it ultimately held; but this is not in accord with the way in which lava flows.

An eruption cools on the surface rapidly while underneath in an underground channel the molten lava continues to force its way onward. The new lava is always pushing itself out from under the lava which has already cooled. This would tend to lift the surface of a lava field rather than depress it. In this lifting process the stumps would naturally be broken and swallowed up.

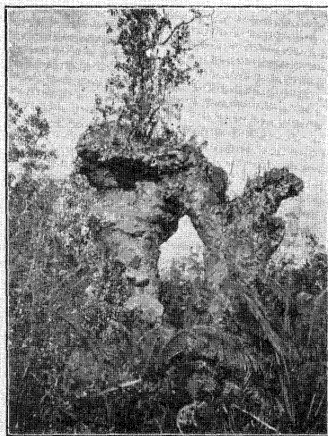
The simplest theory for the formation of these sentinel-like stumps is one propounded by Mr. Rufus Lyman, who has passed the greater part of his life in Hilo and in Puna, and has a number of these lava stumps on his own land. Mr. Lyman thinks that the stumps were made by lava forced up by the pressure of the enormous mass of an eruption of lava pushing itself out wherever any opening occurred in its hardened surface. This is a very simple and satisfactory explanation.

The process can be briefly described: An eruption usually starts near the mountain top, sweeping everything before it as it rushes down the steep sides until it reaches the more level places over which it gradually spreads. Here would be found a heavy growth of hard wood trees. The lava strikes the forest. Many trees quickly burn, while others larger and more abundantly filled with sap or perhaps of harder wood, chill the lava and it hardens around them, drying the outer rim of wood. This burns, leav-

ing a small space around the tree. This space offers an excellent outlet for lava which is almost cool and yet which is forced out by the great pressure behind it. This space is practically a blow hole up which lava is pushed which hardens at once as it falls in a ring on the lava around the blow hole. More lava is pushed up. This is built up on the first ring. Then more and more until the pressure is exhausted. This leaves a cast of lava around the dead trunk of the tree. There are lava stumps which show scratches and lines on the outer surface which could only have been made when lava was forced up along the trunk of the tree past the hard edges of the lava flow around the trunk. The scratches were made in *soft* lava while passing these hardened edges. Then lava pushed up inside of this first ring which was solidifying would build up the cast and not necessarily show scratches. This fact strongly supports Mr. Lyman's theory that

the stumps were made by lava forced up rather than by lava which remained sticking to the tree as an eruption passed by.

Sometimes the pressure forces the lava ring up until it reaches the branches and hardens around them as in the illustration of the group known as "The Camel," where cross branches of different trees carry the lava until the trees are literally bound together.



"THE CAMEL."

Very frequently the inner surface of these lava stumps is marked by small squares separated from each other by little ridges, the squares averaging perhaps half an inch in size. They are exactly what might be expected if the wood instead of being burned had been heated into charcoal and the lava had made a cast or mold of the charcoal.

Very infrequently the interior of such a stump has been protected from rain and decay by an over-arching roof of lava, then the charcoal itself is found firmly imbedded in the lava cast. Fine specimens of charcoal preserved in this way and the casts in which charcoal is fastened have been found by the writer and placed in the Bishop Museum of Polynesian and Hawaiian Antiquities in Honolulu.

Sometimes these stumps have received seeds of ferns, grasses and even trees upon the decaying wood inside. These seeds taking root soon crown the black mass beneath with a picturesque outgrowth. Trees fifteen to twenty feet in height are found growing from the interior of lava stumps. After a time the roots fill the cavity and force the walls of this prison apart. The lava stump is destroyed and its tenants decay among its fragments.



"PELE'S ARM CHAIR.

Innumerable forms are found in this lava forest, giants with grotesque caricatures of the human face; large and exquisitely formed vases filled with ferns and flowers; a host of pillars and even figures of animals. In one place a fine chair was made in which the traveler seats himself for a little rest. This

has been named "Pele's arm chair," as if the goddess of fire had stopped here for a little while to watch her lava fiends wreck havoc around her.

The legendary origin of the lava stumps is interesting: The goddess Pele delighted in holua races. The holua was a long, narrow sled on which chiefs coasted down grassy hill sides. Pele as a handsome chiefess appeared from time to time in different places in the islands with her holua sled. Finally contests or races would be arranged. Pele becoming angry would seek to destroy those who opposed her.

Kahawali, Kamapuaa, Kumukahi, and Papalauwahi are legendary chiefs with whom Pele was said to have raced in this southeastern part of the Island of Hawaii. Both Kahawali and Papalauwahi had their people destroyed by the lava down which Pele rode as she tried to overtake and burn them up. Kahawali's race with Pele was down hills not far from the ocean. Papalauwahi was said to be a chief of the region in Puna higher up the mountain where most of the lava stumps are now standing. Pele poured forth floods of lava to catch Papalauwahi while he raced with her. The great plain was covered with people of Puna gathered to watch the contests of their chiefs. Many of these were caught by the eruption. Pele left them standing all over the plain as pillars of lava and hastened on to destroy the chief. Thus came the forest of lava forms whose legendary origin is the story of a holocaust.

EARLY RICE GROWING.—In "Notes on History of Rice Culture in the Hawaiian Islands," in the ANNUAL for 1877, reference is made to several unsuccessful experiments in former years. Chamisso is authority for the statement that Marin (in 1818) "has lately had rice grow from Chinese seed; after many fruitless attempts." Cheever, in his visit, (about 1850), mentions that "a family of Chinamen were raising rice in the Wailuku valley, Maui, which afforded them two crops a year, but they lacked necessary machinery to thresh and winnow it."

HAWAII REDEEMING HERSELF.

WHILE the lawmakers of 1905 made the grave error of pandering to the liquor traffic by removing the slight restrictions that prevailed, and made possible the establishment of saloons in all parts of the islands regardless of the petitions or protests to the contrary, it is to the credit of the last legislature that an effort to curtail the evil is being made by the enactment of a law containing restrictive features which is encouraging to the hearts of temperance workers in general, as also those having the true interest of Hawaiians at heart.

Among the commendable features of the new law in operation may be enumerated the following, viz: the appointment of a Commission on each island to issue licenses; which body has power to grant, or refuse applications, or suspend, remove, regulate and control any license; increase of license fees; abolishment of certain licenses that had proved iniquitous; publicity of notice of all applications; forbidding the sale of liquor to women and minors, or permitting them on the premises; defining clearly hotels and restaurants under the act, and in its various provisions overcoming the ambiguities of the old law.

As a result the number of saloons have decreased and are controlled as to number and locality. The so-called saloons that infested the neighborhood of Honolulu's markets, as also several resorts that were deemed public nuisances, have been denied a license, and in the effort in behalf of a number of these applicants, through legal counsel, to force their demands, the Commission has been upheld in every case that has come before the courts. The "free lunch" scheme of saloons are done away with, and like efforts to allure or blind the public to the true intent and character of the place licensed is enjoined.

There were a few desirable features of the old law which, if embodied in the new act would have strengthened it materially,

yet, it is proving an effective check on an evil that was making too rapid inroads on the life of the people.

An effort for a local option law was again made at last session and a vigorous fight maintained, but the measure lost eventually by one vote. Doubtless many of its opponents felt that the publicity given all applications for a license and the time allowed to prepare and file protests was a sufficient local option feature in itself to safeguard the public and should therefore satisfy temperance advocates.

Under the new law, and the more aggressive work in progress by the Anti-Saloon League, there is encouragement to the hope that Hawaii will yet redeem herself, for the same benefits that are noticeable on this island are being experienced on the others, of which Kauai appears to have conquered its difficulties best.

SPLENDID SAILING.—In the preparation of the list of record passages on pages 36 and 37 there was found the mention of a trip from San Francisco that puts the oft-quoted record passage of the *Fair Wind* far in the shade, as seen in the following quotation from the "Alta Californian" in 1852: "The clipper ship *Challenge*, which sailed hence in May, for China, was off the harbor of Honolulu in the unprecedented short run of *eight days*—the quickest by many days ever made,—and on the *twenty-third* day from this port (fifteen days from Honolulu) she was within 400 miles of Hongkong; surpassing in speed every other trip on record. This time was made with moderate breezes." She did not enter the harbor but simply touched off port.

The best trip previous to this was one of *eleven* days by the schooner *Golden Rule*, which arrived here Dec. 2nd, 1851.

HAWAII'S DIFFERENT LAVA FLOWS

As Shown by Various Authorities on Hawaiian Volcanoes.

VERY general interest and enquiry was made during the period of volcanic activity, described in the preceding paper, as to the differences between *pahoehoe* and *a-a* lava flows, and the cause or causes therefor. The question is a very natural one, and doubtless arises with each recurring flow of sufficient magnitude to attract interested sight-seers. The answer, however, meets with some difficulty of solution.

Various theories are presented by one and another of those who have witnessed these flows, some of which so conflict, that it may help the study of the question by reference to the different authorities on the volcanoes of Hawaii, from whose writings we would acknowledge our obligations for the following extracts covering the different lava forms of these islands.

Dr. Wm. T. Brigham, in his (the pioneer) work on Hawaiian Volcanoes, describing a lava flow south of Kealakekua, has this to say relative to the kinds of lavas:

"¹ The surface of this, as of all other Hawaiian streams, present three aspects; the *pahoehoe* or velvety lava, which is folded and twisted in the manner of a viscid fluid; the *clinkers*, or scoriaceous lava, rough and covered with fragments; and the *a-a* or spongy lava, a form of which no description can convey an idea of the horrible roughness and hardness. The *pahoehoe* is the most common form, and occurs when the flow passes over rocks or dry earth at a gentle slope, although the inclination may be more than 50° without the formation of scoriæ if the ground be tolerably even and the current unimpeded. The scoriaceous lava, or clinker fields, are found wherever the stream passes through woods, wherever its course is impeded by obstacles or inequalities in the ground, or where the heat of the melted rock causes the explosion of caverns in the former flow over which it passes.

¹ Notes on the Volcanoes of the Hawaiian Islands, William T. Brigham, A. B., 1868, p. 31.

The a-a is the most puzzling to one who has never seen the actual process of formation, but it seems to occur when the lava meets with an impediment, which gives way just as the lava is granulated, rolling the spongy mass over, and building up high piles from which the liquid lava drains away."

At another point, in Kau, "near a row of trees extending from Kilauea to the coast, the road crosses" a variety of "what the natives call *pahoehoe lapalapa*—lava that looks like boiling water. It was formed by passing over caves in the older rock, exploding them and raising in this way bubbles and cones, as well as small tracts of a-a."

"² The structure of the fresh lava is not easy to understand, some parts of the same stream having a clear ring when struck, others being dead and flat. The mode of granulation certainly has much to do with the phonetic qualities of lava, as the a-a or simple granules sound quite differently in different places, although of the same composition and appearance."

Prof. Jas. D. Dana, with the aid of all our authorities on the subject to supplement his own observations, experiences and study, admits the problem "is a difficult one to understand" from the fact that the a-a stream is less often seen in process of formation." On the other hand, Capt. C. E. Dutton, from his studies of Hawaiian Volcanoes, though without an opportunity of witnessing a live flow during the whole period of his visit, in 1882, in treating the two kinds of lava, says:

"³ Why the same lava stream should in some portions of its extent take the form of pahoehoe and in others take the form of a-a seems at first mysterious; but the explanation is not difficult * * * when we come to examine the varying conditions which attend the flow of lavas and the circumstances under which they finally cool and solidify. When these lavas are discharged they come up out of the ground in enormous volumes, are intensely heated, and are very liquid. * * * As they become cooler they become viscous. The cooling takes place upon the surface of the mass while the interior still remains hot and

² Notes on Volcanoes of Hawaiian Islands, p. 121.

³ Hawaiian Volcanoes, C. E. Dutton, p. 96.

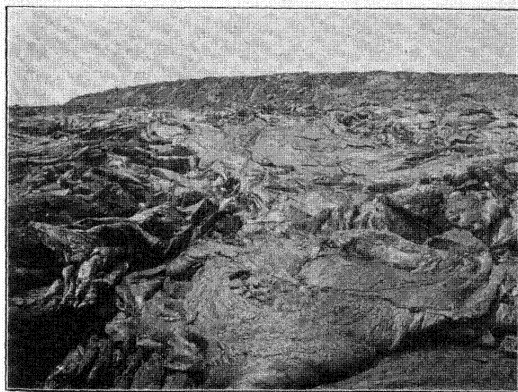
preserves a viscous liquidity. The superficial crust of cooled lava undergoes rupture at numberless points, and little rivulets of lava are shot out under pressure, * * * they spread out very thin and are quickly cooled, forming pahoehoe * * *

"The fields of a-a are formed by the flowing of large masses of lava while in a condition approaching that of solidification. * * *

"The same stream may exhibit pahoehoe or a-a, according to the circumstances attending the flow, and the final form which the stream takes is quite independent of the chemical constitution of the lava."

W. L. Green, author of "The Molten Globe," than whom none of our authorities had more practical knowledge from personal observation of various lava flows, covering over thirty years during this, his life study, hence, more opportunity for his deductions, which are as follows:

"⁴ There are two marked features in the main classes of lava



PAHOEHOE LAVA FLOW.

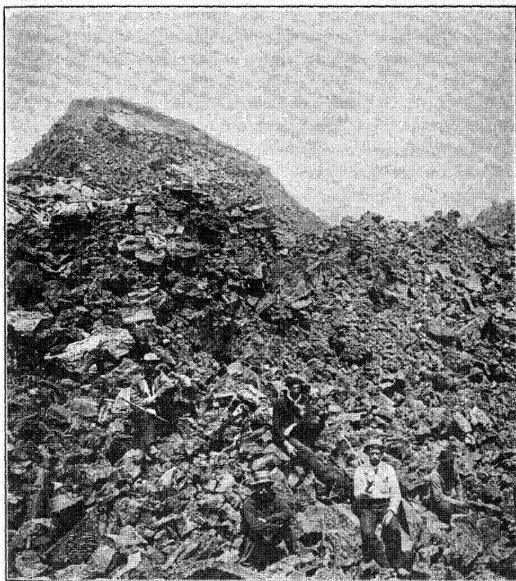
⁴ Vestiges of the Molten Globe, Wm. Lowthian Green, Vol. II, 1887, pp. 171-2.

flows—which appear on the Hawaiian Islands, as well as other parts of the world—which are constantly attributed to the action of steam and gases, but which, in our view, have nothing to do with either. The two classes of flows are what are called in Hawaiian *a-a* and *pahoehoe*. The *a-a* (rough) looks like a great scoriaceous railway embankment. * * * The other class is *pahoehoe* (meaning smooth surface). This class of lava we saw flowing from the *a-a* stream of 1859, showing it is not a different kind of lava, but merely a different form taken under different circumstances of flowing. The lava seems to form *pahoehoe* when it is not in too great quantity, but runs out quietly.”

“⁵ The lava which came out at the crack above the main outburst of 1868 deserves particular notice, as a great deal of it seems to be a mass of lava froth. It flowed nine or ten feet deep amongst the small trees which stood in its path. * * * Many of the trees were entirely destroyed, but many others in the wake of this flow of lava froth were only charred on the outside, and although some of them were only seven or eight inches in diameter, they were not borne down by the weight of the stream. The whole evidence on the spot seemed to show clearly that at this part of the flow the lava was comparatively cool and very light; just such an effect, in fine, as a thorough mixture with the external air might produce. The substance * * * seemed to be little more than what is called basaltic pumice, which had been in a molten and flowing state. * * * The greater part of the flow below the fountain was compact lava, with much olivine, but at this part of the fissure, just above the fountain, an emission of froth only seemed to have taken place. * * *

“The *a-a* flows of the 1868 eruption, which ran over the table land of Kahuku, presented a remarkable contrast, as they stood like great black railway embankments, clearly defined on the bright green slope. Large crystals of olivine could be seen in this scoriaceous *a-a*, as one rode past it, as thick as plums in a pudding.

⁵ Vestiges of the Molten Globe, pp. 281-2.



"A-A" LAVA FIELD.

"There seems to be three classes of pahoehoe, all of which may be formed from the same lava; the different appearances arising mainly from the quantity that is released at once, and its heat and consequent fluidity. There is a kind that spreads over the surface on the ground in low bosses or tongues, and which was very plentiful in the flow near Hilo, in 1881. Then there is that which spreads over the surface in large regular mounds (*horn-tons*), most of them hollow, and appear to arise from a more liberal supply of hot lava. The pahoehoe which ran out close

to, or from the fountains of 1887 differed from either of the above. It looks as if a running flood of very hot and therefore fluid lava, had been instantly frozen in its course—as indeed, it no doubt was.”

Of Prof. J. D. Dana’s deductions on the pahoehoe and a-a lavas, we make the following excerpts:

“⁶ The ordinary smooth-surfaced lava-stream, the pahoehoe, needs no further description. The a-a stream is less often seen in process of formation, and is more difficult to understand. With reference to an explanation of its origin, * * * the reader’s conception of it will be feeble at the best if he has not already had a view of chaos.

“*a.* The characters of the cooled a-a stream: (1) a mass of rough blocks one foot and less to one thousand cubic feet in size, loosely piled together to a height of twenty to forty feet above the general level; (2) the blocks bristling with points, but not scoriaceous, and less vesiculate than most of the pahoehoe; (3) the material rather brittle, and consequently, when made up of small blocks or pieces, easily broken down to a flat surface by the natives; (4) often a-a making part of a stream when the rest is pahoehoe, either of the two the chief part; (5) sometimes making one stream from a source, when another from the same source going off in a different direction is pahoehoe.

“*b.* The constitution and condition of the a-a stream when in motion: (1) a mass of rough blocks outside, precisely like the cooled a-a stream; (2) the motion extremely slow, indicating a semi-fluid condition beneath; (3) a red heat often in front among the blocks; (4) fused rock seldom exuding; (5) the blocks of the upper part of the front, as the stream creeps on, tumbling down the high slope, owing to retardation at bottom from friction, and thus a rolling action in the front part.

“One of the best descriptions of an a-a flow is that of Judge Hitchcock, which says: ‘Along the whole line of the advance the stream, twelve to thirty-five feet in height, was one crash of rolling, sliding, tumbling, red-hot rock, no liquid rock being in

⁶ Characteristics of Volcanoes, Jas. D. Dana, 1890, pp. 241--3.

sight; with no explosions, but a tremendous roaring, like ten thousand blast-furnaces all at work at once.' Another observer writes: 'I have stood by a wholly molten stream of lava which miles below was cooling into a-a.' * * *

"The *first* conclusion we may draw, in view of the facts, and especially the abrupt transitions in a flowing stream from a-a to pahoehoe and the reverse, and the independence in kind of lava, is that the difference must be connected with some condition in the region flowed over; and the *second*, that where the transition from one kind of stream to the other occurs, the conditions must be such as will allow of extreme liquidity in one part (the pahoehoe), and occasion imperfect liquidity or a pasty state in the other (the a-a).

"It follows from the size and rough character of the blocks of lava, *thirdly*, that in an a-a stream the lava must have been subjected to some deeply acting cooling agency to have made a crust thick enough for blocks ten to twenty feet or more in dimensions, far thicker than the crust over the tunnels in a pahoehoe stream. *Fourthly*, that the cooling was not from above downward, as in the pahoehoe, for there are no remains of a pahoehoe crust in the true a-a field,—but largely from below upward; and thence comes the absence of a crust and of the usual amount of vesiculation. There are no fragments of pahoehoe among the a-a fragments.

"These four conclusions appear to lead to a *fifth*,—that the region flowed over and making a-a was one having more or less of subterranean moisture, since only moisture could produce the partial cooling required; not a superficial stream of water that the lava could evaporate, and so put out of its way, but deeper and more widely spread moisture. * * * The a-a near Hilo, observed by the author, was over a valley depression, beneath which such an amount of moisture may well have existed. Another was along the foot of the meeting slopes of Mauna Loa and Kilauea, west-southwest of Kilauea. But the observations were too brief to authorize a positive opinion as to the influence of the form of the surface in these cases; and in others, according to the descriptions, the surface covered by the a-a is not always depressed.

"There must be more or less moisture in the dark recesses of Mauna Loa. The cold summit will find enough in the air to condense at most seasons; and the percolating rains must keep the recesses damp, and even make standing water wherever the rocky layers favor it. With subterranean moisture a hundred yards more or less beneath the broad lava-bed the generated vapors would ascend into and through the liquid mass, cooling it thus from below,—yet not so much the hotter bottom, which receives new supplies of lava, as the portion above. The part solidified would become shattered or broken up by the tearing steam and by contraction from cooling; and at the same time the flow at bottom would displace and tumble together the great and small masses, giving the pile height because of the jagged forms of the blocks and the cavernous recesses left among them. This view appears to meet the demands of the facts I have observed, and all others so far as they have been published. But I present it only as a suggestion.

"On this view an a-a stream is literally an aration or ploughed-up lava-stream,—a stream ploughed up from near its bottom, so that, although vesiculated, the surface vesiculation fails, as was well shown in the steam of 1880-81 near Hilo and in all the other cases the author has examined."

In dealing with the recent volcanic outbreak, Dr. S. E. Bishop in a contribution to "The Friend" remarks as follows on the forms of lava:

"⁷ The clinkers, or a-a, are a common form which the molten rock very commonly assumes in cooling. They are spongy, knotty, bristling fragments of rock of every conceivable form of raggedness, borne along on the heavier molten liquid. Lava is a viscid, liquid rock, saturated with occluded gases, which, on reaching the surface, expand into innumerable visicles. If the lava cools and hardens immediately without further movement, it forms pahoehoe or ropy lava, whose visicles are spherical. But if it continues to move and roll along while half cooled, the visicles are pulled out of shape and elongated, and ragged, misshapen forms are developed."

⁷ The Friend, February, 1907.

MAUNA LOA'S OUTBREAK AND LAVA FLOW OF 1907.

TOWARD midnight of January 9-10, 1907, following a short period of moderate earth-tremors, felt in certain parts of Hawaii, volcanic flames shot forth from Mauna Loa, illumining the heavens with a bright glow observable from nearly all parts of the island, and on Maui, giving the general impression at first that the summit crater of Mokuaweoweo had burst into activity. Nor was the true source located for several days, though a diminution of the bright glare following an outbreak of lava on the 11th, seen high up on the southerly slope of the mountain, with its flow running down toward Kahuku ranch, led to defining it to the vicinity of the flows of 1867 and 1887, which seems appropriately termed the Kahuku volcano.

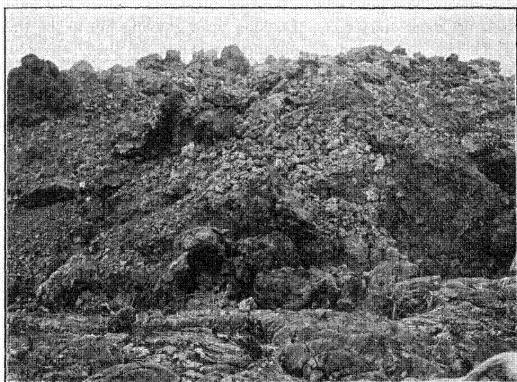
So violent was the activity, and so limpid the flow of pahoehoe lava, that the stream reached and crossed the government road on the Kona side of the flow of 1887 in two days, advancing in places at the rate of seven miles an hour, destroying the telephone lines and stopping traffic for a short time. By the 16th it had extended over thirty-five miles of waste land, and in a moving mass fifteen feet high and a half a mile wide, changed in character to a-a, it kept onward at the rate of thirty feet an hour, shortly afterward subsiding, but only to give way to a new flow which also crossed the road and appeared to have come from the same source, though at a much lower elevation.

The brilliancy of the outbreak and the reports of the flow coursing down Mauna Loa proved an irresistible allurements to many, not only from various parts of Hawaii, but from the other islands of the group also. Excursion parties formed one after the other and departed for the scene of action by the available steamers from Hilo, Mahukona, and Honolulu, for Kona ports convenient to the flow, requiring special trips of several vessels in addition to the weekly trips of the regular packets. Besides, many on Hawaii took advantage, early, of all available means

for land journeying, so that for a fortnight at least the travel was continuous and the parties large and enthusiastic. Probably no flow, for the length of time of its duration, was witnessed by a greater number of excursionists.

Viewed from different points by various early parties it was not strange that some confliction occurred in the first reports published relative to the source and magnitude of the flow, nor was the subject thoroughly understood until several days had elapsed and reports from parties formed for the express purpose of exploring the flow to its source were made public. This long and arduous undertaking over the roughest of country was accomplished by at least three different parties of several members each, the first account of which appeared just two weeks from the date of the outbreak, and located the source of the first flow as at Puu Ulaula, at an elevation of about 12,000 feet, and some three or four miles from the summit, in the Pohaku-Hanalei section of the Kahuku tract of Kau, while the second flow of several days later occurred about fifteen miles lower down. Surveyor E. D. Baldwin places the first outbreak at a much lower elevation.

When the McDougal party reached the source, the flows immediately below the first outbreak were cold and dead, though the continuous line of smoke between the first and second outbreak indicated the course of the flow in its underground progress. At the second outbreak was a molten mass boiling, splashing and overflowing on its mauka side, running around Kamoalaala hill and down on its course seaward. This flow at its outlet was of pahoehoe character, but turned to a-a as the distance increased, showing that the difference of these two kinds of lava-flow, of which much enquiry was made at the time, appears to be largely one of heat rather than formative material. The lava of the second flow was described by observers as pahoehoe at its emission, but as the distance increased it turned to a-a, and this was the character of the flows that crossed the government road, which showed a depth of from fifteen to thirty feet, while at the end, some three miles from the sea, it had piled up to a depth of over fifty feet.



MOVING MASS OF "A-A" LAVA, 1907 FLOW.

The Frear-Gartley party in their visit, after a ferilous journey over treacherous ground, reached a point toward Puu Keokeo where they could look right down into a lake of red hot lava about 800 feet in diameter. They had followed down a partly cooled flow and climbed up thereon to obtain a better view and kodac the scene. Getting used to their surroundings and somewhat braver they ventured nearer and witnessed the grander sight of the whole lake, with two great holes in the bluff out of which two streams of lava were running. A little way from the shore was a fountain that kept shooting hot lava fifty or sixty feet into the air. Occasionally the lake would cool in spots, making little black islands, and then a wave of molten lava would rush across the surface and bury them. This continually changing scene entranced the observers for some three or four hours.

A stream of hot lava ran between the party and the lake, yet desiring a closer view they crossed the flow, which was all aglow

underneath, and got right to the base of the lake which had built itself up about sixty feet. Looking up a glowing hill to the rim of the lake did not give assurance of safety, so they retreated, then rested for the night, taking hour watches lest the walls of the lake give way and rush down the hill, which sight, should it occur, they desired to see.

An effort was made next morning by two of the party crossing the flow again, to obtain a vantage view of the lake from the bluff, but in this they were frustrated by the hot lava.

On January 24th the flow ceased, but activity at the source continued for some time later.

Hon. G. C. Hewitt reports witnessing from the Kau side of the flow a strange spectacle on the night that it ceased. Briefly his account is as follows:¹

"Shortly after the cessation of the flow down the mountain side a large lake of lava formed on the higher hill above where the flow turned towards Kona. With a powerful glass I took pains to closely observe the formation of this lake. The side toward the mountain was a high perpendicular cliff of several hundred feet. As the lake began to fill up with liquid lava, this cliff became brightly illuminated and the reflections showed that it was filling rapidly. Upon reaching the level of the lower side toward Kona the lava flowed for a short distance and disappeared. This lake, I should judge, was at least half a mile long and perhaps as wide. Shortly after forming there began to arise upon the surface many vivid flashes, tree-shaped, but fluttering rapidly and becoming so numerous as to finally merge into one broad sheet of flame. These flashes were of the most vivid colors of the rainbow, and continued from one end to the other. Shortly after the clouds obscured the view and only a dim reflection could be seen. Meanwhile, apparently about a mile away and slightly lower in elevation in a deep gulch, a hill began to form, growing rapidly and becoming as it grew of a dull redish brown. This hill increased to an immense size, and widened till it was as large as Diamond Head, grandly glowing, then dying out to a dull red. The a-a seemed to be forming a solid hill that would remain permanently. At this time it cleared up again over the lake

¹ P. C. Advertiser. Feb. 3, 1907.

that had formed, but the beautiful flashes were gone, the lake apparently having greatly cooled off. About this time a stream of thin lava came down behind the hill that had formed in the gulch and began to disappear behind it. For a few moments it seemed to have gone on in some manner underneath the hill, but shortly the whole mass began to turn and gradually grow hotter, while large boulders began to leave the immense mass and roll down its face. These, after an interval, were followed by a sliding of the face of the hill; then the whole mass flattened out down the face of the mountain, spreading out fan-shaped and covering, it seemed, a territory at least a mile wide and far down the mountain side with a great depth of a-a. The formation and breaking away of this hill was most interesting, showing how mounds and hills are made and unmade in a few hours. Upon the collapse of the hill I looked toward the lake and found, as the clouds cleared away, that there was no indications of its existence.

"During the time of the flashes upon the surface of the lake the scene was indeed an inferno, caused doubtless by electrical conditions, as I could distinctly hear peals of thunder in that direction. There were many other flows of a-a spreading out over the mountain side, fan-shaped, and covering many miles of ground along the whole side of the mountain, but I only observed the formation of this one hill."

The outbreak seems to have been attended with an immense outpour of sulphur, all parties reporting the density of sulphurous gases in the vicinity of the flows, and its serious effect on many of the trees, ferns and shrubs met with.

Simultaneously with the cessation of the flow on the Kahuku slope of Mauna Loa the volcano of Kilauea renewed her activity to a degree exceeding any of her wakeful periods since 1894, the pit of Halemaumau filling up rapidly several hundred feet, its whole surface in commotion, and a seething mass of lava shooting forth at times from a place in the left wall of the crater, extending clear across the lake. This has been followed with intermittent quiet periods, to be each time awakened with fresh vigor, and in July its demonstrations of patriotism on the Fourth was noted by a number of distinguished visitors.

TABLE OF VOLCANIC ERUPTIONS, ISLAND OF HAWAII, 1790 TO 1907.

So far as known, extending the list given in "Vestages of the Molten Globe."

Outbreak		Period of Activity	Approx. Hight Main Issue	Character of Eruptions; Locality and Remarks.
Year	Month			
1790.....	Unknown...	Few days...	4,000 ft.....	Eruption of ashes, sand and poisonous gases from Kilauea, asphyxiating 400 of Keoua's army in its vicinity.
1801.....	"	.....	.....	Outflow on Hualalai, from western side to the sea, a distance of six miles, destroying houses and property.
1823.....	"	.....	Below Kilauea.	Subsidence in Kilauea, with outflow at Kau, six miles wide.
1832.....	June 20.....	18 days.....	13,000 ft. and in Kilauea	Large overflow on Mauna Loa and subsidence in Kilauea; several streams of lava ran down the mountain, none reaching the sea.
1840.....	May 30.....	3 or 4 wks..	1,244 ft.....	Large subsidence in Kilauea, with outflow in Puna reaching the sea in five days, 35 miles distant.
1843.....	January 9...	2 or 3 wks..	Near summit 13,000 ft.....	Rather large outflow from Mauna Loa, on north side, from which two flows issued, which, however, did not reach the sea, though the lava discharge was immense.
1851.....	August 8...	3 or 4 days	Near summit...	Small outflow from Mauna Loa, on west side.
1852.....	February 17.	1 month....	10,000 ft.....	Large outflow from north side of Mauna Loa, followed three days later by another below it similar in size. The river of lava traveled 40 miles in three weeks and stopped within ten miles of Hilo.
1855.....	August 11..	15 months..	12,000 ft.....	Very large flow from N. E. side of Mauna Loa, one of largest on record. One stream stopped some seven miles from Hilo, Feb. 12 1856, but activity continued at the source till November.
1859.....	January 23...	6 months...	10,000 ft.....	Large outflow from N. side of Mauna Loa, reaching the sea at Wainanali, near Kawaihiae, in eight days, 38 miles distant.
1865.....	December 30	4 months...	13,675 ft.....	Important fountain in summit crater; no flow.
1868.....	March 27...	2 weeks ...	2,000 ft.....	Large outflow from S. side of Mauna Loa, with subsidence in Kilauea. April 2nd a mud flow at Kapapala occurred, destroying houses, cattle, and 31 lives, followed by a tidal wave causing other loss of life and property. On 7th a stream of lava broke out above Kahuku, Kau, reaching the sea at Kalikii, continuing five days and ending April 11th.
1872.....	August 10...	5 months...	13,675 ft.....	Great fountain in summit crater only; no flow.
1873.....	January 7...	18 months..	13,675 ft.....	Great fountain in summit crater only; no flow.

TABLE OF VOLCANIC ERUPTIONS, ISLAND OF HAWAII (Continued).

Outbreak		Period of Activity	Approx. Hght Main Issue	Character of Eruptions: Locality and Remarks.
Year	Month			
1875.....	January 10.....	1 month.....	13,675 ft.....	Important fountain in summit crater only; no flow. Large outflow on Mauna Loa from W. side of summit and in the sea at Kealakekua.
1877.....	February 14.....	10 days.....	13,675 ft. and in sea.....	
1880.....	May 1.....	Few days.....	13,675 ft.....	Short appearance in summit crater only; no flow.
.....	November 5.....	9 months.....	10,000 ft.....	Very large outbreak on N. and E. sides of Mauna Loa; three large streams about 70 miles long in all; one reaching the edge of Hilo.
1884.....	January 22.....	Few hours.....	In sea.....	Unknown quantity. In sea off East Cape, Puna, 15 to 20 miles from Kilauea.
1886.....	March 6.....	Few hours.....	.....	No outflow found. Total subsidence of lavas in Kilauea.
1887.....	January 16.....	2 weeks.....	5,200 to 5,700 ft.....	Large outflow in Kau, south side of Mauna Loa, coursing near the flow of 1865.
1889.....	June 24.....	.....	4,000 ft.....	Remarkable activity in Kilauea; no flow.
1891.....	April 17.....	.....	4,000 ft.....	Slight activity renewed in Kilauea; no flow.
1892.....	July.....	.....	4,000 ft.....	Remarkable activity in Kilauea with overflow of Halemaumau.
1894.....	March.....	.....	4,000 ft.....	Important continuous changes in Kilauea with rising and falling of the lakes and final subsidence July 12th.
1896.....	April 21.....	2 weeks.....	13,675 ft.....	Great fountain in summit crater; no flow.
1899.....	July 4.....	.....	11,000 ft.....	Large outbreak on the east slope of Mauna Loa, with flow following somewhat that of 1886-81.
1902.....	August 25.....	.....	4,000 ft.....	Important fountain action in Kilauea; no flow.
1903.....	October 3.....	.....	13,675 ft.....	Great fountain in summit crater, followed after a month's duration with a small flow from Pohaku Hanalei.
.....	November 25.....	.....	4,000 ft.....	Sympathetic action in Kilauea; no flow.
1907.....	January 10.....	.....	12,300 ft. and 7,500 ft.....	Outbreak at Pohaku Hanalei on southern slope of Mauna Loa, with two "a-a" flows partly covering those of 1888-1887, but not reaching the sea.
.....	January 21.....	.....	4,000 ft.....	Important fountain action in Kilauea, intermittent in character for several weeks.

HAWAII'S SISAL FIBRE PROSPECTS.

FROM the last annual report of the Hawaiian Fibre Company it is gratifying to learn the encouragement that is being met with in the establishment of this new industry and the assurance of its importance as a most desirable export product.

The output of its fields for 1905 were 240 bales of first-class fibre weighing 132,311 pounds, which realized \$9,678.61, and for 1906, 224 bales of 126,751 pounds, which realized \$9,569.00, besides furnishing 95 bales assorted fibre of lower grades, one-half of which is carried over to the new year, the sale returns therefrom amounting to \$831.10. Sales of plants have been effected also for further undertakings in this Territory, as also for shipment to the U. S. Bureau of Agriculture at Manila, after enquiry and comparison with other sisal fibre producing countries, the department deciding in favor of the Hawaiian plant as producing the best quality of fibre. Enquiry for plants are also reported from such distant lands as South India, Queensland, Formosa, and the Philippines, as well as from Hawaii and our own Island of Oahu.

At the time of making up the report there were 860 acres under cultivation, of which, between three and four hundred acres would be cut during the season of 1907, and the prospect of harvesting six hundred acres the coming year. All the cultivated area was reported to be in excellent condition.

The sales of practically all the fibre so far manufactured have been made to the Tubb's Cordage Co., of San Francisco, at full market rates, a small lot going forward to their Portland branch. The Pacific coast consumption of fibre is 30,000 tons per annum, supplied from Yucatan, and this near market can be ours as soon as we are able to command it. From replies received to enquiries

in New York and London, on the submission of samples, the markets there are ready to advance rates whenever an enlarged annual output warrants its attention, so favorable are all the expert's reports thereon. Unexpected enquiry also comes from Japan, with the prospect of a market in that direction.

With this assurance of ability to command their market the company this last year concluded negotiations for the lease of an additional tract of 2,000 acres well adapted for sisal growing, with a view of more extensive operations, and the work of its planting is already entered upon.

This pioneer enterprise in a new field of local industry has had the usual drawbacks of all such initial effort in making its way, and all subsequent undertakings will be able to profit by its experiences; and it may not be inappropriate, in passing, to touch upon some of these practical educational points, as viewed by an onlooker.

First: While it is quite true that sisal may be successfully grown on poor and arid lands as has been claimed, it is found to be materially affected by seasons of drought, and is perceptibly responsive to the benefits of soil of some depth. These two points have been demonstrated here and were recognized abroad by Manager Weinrich in his recent visit through the sisal-growing countries.

Second: The theory of "a little farm well tilled" hardly holds good, for experience has proved that concerns of large area with sufficient capital for intelligent development are the most successful, as has been well illustrated by both our sugar and pineapple industries, and the disadvantage of restricted area in sisal is being realized. Hence the necessary extension of its operations by new and improved lands.

Third: The attention given to the hitherto waste fibre from the machine is bringing forward new products for utilization, according to quality. So far this is sorted into three grades, the first of which, while lower than cordage fibre, furnishes an excellent material for upholstering and such like uses that is being

developed. The "medium" also furnishes a second grade article for similar purposes, while the lower or "picked" grade gives a paper-making material of fair quality that has a prospective market when furnishable in quantity sufficient to obtain lower freight rates. Hitherto this has all been waste in the full sense of the term, but with increased production and less expensive means for its treatment, to which attention is being devoted, it is hoped to afford satisfactory returns.

Fourth: The knowledge gained in the experimental period of this industry in the treatment and milling of the fibre has been of value, as are all such experiences, both from the standpoint of economy in manufacture and quality of fibre produced, with the result of gradual improvement of the plant and its working.

Fifth: Time of planting, treatment of plants in nursery and field, and methods of cultivation to procure the best results, as also the very important question of market have all been ascertained, and are valuable points of information to all successive fibre growers that may establish here.

To demonstrate, as the Hawaiian Fibre Co. has done, "that Hawaii can grow sisal fibre equal to the best," so that it is attracting the attention of the world's markets, is a valuable asset to the fibre industry of the Territory and should greatly encourage those who are venturing into the field. The extension of planting area by this pioneer company triple that of what it has already developed shows confidence, and investors should not be backward in extending its capital.

Favorable reports are also gleaned of sisal prospects on Hawaii, both at Pahala, Kau, and Kailua, Kona. At the former place a tract of land unsuited to cane culture was planted by the Hawaiian Agricultural Co. to sisal in 1902 and 1903, embracing 452 acres, which is coming along in good shape. From the trial field first laid out the first sample bales of its fibre have already been shipped, and the main fields will be ready to crop a year or so hence. The McWayne sisal tract of some 500 acres at, or near, Kailua, has so far progressed as to warrant the establishment of the necessary machinery for the treatment and manufacture of its product.

The efforts put forth in this same direction on Maui are reported to be satisfactory, though Molokai's outlook does not appear as promising as was at one time reported. Other parts of the islands, however, are considering the advisability of utilizing waste tracts with the prospect that certain parts of the Island of Lanai may be devoted to sisal culture so soon as the unfortunate litigation which is blocking the development of industry there is overcome.

Altogether the outlook for this new industry is stimulating, and when the various sisal plantations shall have reached the maximum capacity of their annual production, it is encouraging to have the assurance of an improved market in consequence, rather than a tendency to lower its figures, and compared with the New York quotations on the Yucatan and Bahama fibre ranging about seven cents per pound, ours should command nearer ten, was the statement of Eastern fibre experts.

THE WAINIHA ELECTRIC POWER PLANT.

Description of the Hydro-Electric Plant of the Kauai Electric Company and the Electrically Driven Pumps of the McBryde Sugar Company.

(Read before the Hawaiian Engineering Association, October, 1906, meeting.)

BY A. GARTLEY.

IN presenting this paper to the Engineering Association I shall not go into the details of the organization and promotion of the Kauai Electric Company, but will adhere strictly to a description of the technical details.

The object of the promoters in building an electric plant was to generate power from a mountain stream in Wainiha Valley on the northwest side of the Island of Kauai, and to utilize the same in operating pumps at McBryde Sugar Plantation on the south

side of the island. It was estimated that about 2500 horse-power would be required by the McBryde Sugar Company.

Preliminary surveys of the water, power-house site, pole line, ditches, etc., were made in the latter part of 1904. Contracts were placed for conduit, power plant and transmission line in March, 1905, and the plant was completed and formally opened early in August, 1906.

Wainiha Valley is a deep valley which cuts into the heart of Waialeale, a mountain approximately 6,000 feet in height. The valley is about fifteen miles long and receives the under drainage from a large plateau of an elevation of from four to five thousand feet. The Wainiha stream is said to have the most constant flow of any stream on Kauai.

When operations were commenced at Wainiha there were absolutely no facilities for receiving freight, housing the men or transporting the machinery. It was necessary to build a wharf on the beach and connect it with the power-house by a light railroad. Warehouses were built near the wharf to receive the freight, houses were built at the power-house site to accommodate the men and trails were made into the valley for the transportation of stores and material for the tunnels.

WATER CONDUIT.

Water is taken from the bed of the Wainiha stream through the head gates at an elevation of 710 feet and carried through a conduit consisting of tunnels and ditches, there being 32 tunnels and eight connecting ditches having a fall of .2 per 100 feet.

The tunnels are six feet wide, four feet high with an arched rise of two feet and comprise 17,400 feet of the total length of the conduit.

The ditches are five feet bottom, nine feet top and six feet deep and five-foot berm, the slope on the high side of the ditch being $\frac{3}{4}$ to 1. The combined length of the ditches is 5,600 feet.

All tunnels are through solid rock and considerable difficulty was encountered with what is known as "Kanaka" rock, it being

necessary during construction to install power drills on two of these tunnels.

The head gates are just below a bend in the bed of the stream and advantage was taken of the deflection to construct a large overflow. There is a sluice gate immediately below the overflow to take care of sand and debris deposited in the ditch above the screen. A screen grating placed at an angle of $\frac{1}{2}$ to 1 intercepts any floating debris and is placed immediately above the head gates. There are three 3-foot head gates operated with a rising screw stem. It was found necessary above the head gates to throw an arch across the ditch and build a stone-wall about three feet above the level of the top of the ditch to deflect the flood water which is at times two to three feet above the level of the top of the ditch. At several points along the line of the conduit where streams cross the ditches or where the tunnels break out into gulches, aprons have been built over the ditches and cross the tunnel entrances to carry the storm water, provision being made, however, to receive into the conduit the normal flow of water from these various small streams. One large stream, the Maunahena stream, supplies a daily flow into the ditch of from eight to ten million gallons. There are sand traps, spillways and flushing gates at several points along the line of the conduit, the largest and most important spillway being between the last two tunnels.

Water is received at the lower end of the conduit into a fore-bay of substantial size and construction. The conduit ends in a tunnel on the backbone of a ridge and the fore-bay is excavated out of the solid earth, the total depth being 12 feet. The excavation is lined with a concrete lining 18 inches thick on the walls and six inches on the bottom.

There is a 42-inch sluice gate level with the bottom of the fore-bay and, immediately in front of this, and extending entirely across, there is a wall two feet six inches high, the object of which is to act as a baffle to retain the sand which might be precipitated into the fore-bay. This wall also acts as a support for a screen which extends the entire width. This screen is 20 feet long by 11 feet high and is made up of 3-16x3 inch flat iron bolted to-

gether and separated with pipe thimbles $\frac{3}{4}$ inch long. It is placed in the fore-bay at an angle of about $\frac{1}{2}$ to 1 in order that it may be readily cleaned.

In the front of the fore-bay there are three 42-inch outlets, two of which connect with two pipe lines and the third to be connected to a future pipe line. These outlets are closed with rising screw stem wooden gates. Just outside of the fore-bay there is a riser pipe on each pipe line to admit air into the pipe line when the valve is closed.

A spillway 12 feet wide is provided on one side to take care of the rise of water in the fore-bay which might be caused by the inertia of the water should the pipe line be suddenly shut off.

The level of the water at the fore-bay is 655, the level of the center of the pipe line is 648. This depth of immersion, together with the ample screen area, it is believed, will insure a full pipe of water at all times.

PIPE LINE.

Two pipe lines lead from the fore-bay to the power-house immediately below, a distance of 1700 feet.

The first section of pipe is 42 inches, tapering to 34 inches at a distance of 20 feet, the thickness at this point being 3-16". The 34" 3-16 pipe extends for 880 feet where it is reduced to 30 inches, the remainder of the pipe being 300 feet 30-inch diameter $\frac{1}{4}$ inch thick; 280 feet 30-inch diameter 5-16" thick; 220 feet of 30-inch diameter 3-8" thick.

The two pipe lines are covered throughout their entire length and are anchored in the trenches at intervals of 150 to 200 feet. The anchorage consists of an angle iron riveted to the underside of the pipe, this in turn having a piece of steel plate riveted to it, the steel plate bearing against two 35-pound steel rails about six feet long laid crosswise of the ditch and imbedded solidly. This method of anchoring seems to have been very successful. There are three man-holes in the length of each pipe for access to the pipe should stoppage or leakage occur.

There are no air valves or relief valves in this pipe line as only

a complete stoppage of the pipe or a complete stoppage of the water wheel nozzles can throw an excessive strain on the pipe. Should the pipe be suddenly emptied a small riser pipe, referred to previously, would be depended upon to supply air.

POWER HOUSE.

The power-house is a substantial iron building supported on a concrete wall, 64x40 feet and has an L constructed of concrete for the transformer house.

There is a traveling crane of 16 tons capacity, carrying two 8-ton Yale & Towne blocks. This crane travels over the entire length of the power-house and has a capacity sufficient to lift any piece of apparatus.

The transformer house has an alleyway 11 feet wide extending down through the center and on each side of this alleyway there are three entirely enclosed fire-proof cells each containing one transformer. The alleyway has a traveling crane of sufficient capacity to handle the transformers and is used as a storage space for an extra transformer. This house is constructed entirely of concrete with an iron roof. Its floor level is six inches below the level of the main station, to prevent accident from fire should the transformer oil become ignited or boil over.

EQUIPMENT.

The station as at present equipped has two 1200 kilowatt generators direct connected to Pelton water wheels, two 70-kilowatt exciters, a switchboard and seven 500 K. V. A. transformers. Allowance has been made for an additional 1200-kilowatt unit.

HYDRAULIC PLANT.

There are two units of 1200 kilowatts each, duplicates in every respect. Each unit is a two bearing, double wheel unit of the overhung type and consists of two Pelton disc wheels, one pressed on each end of the generator shaft. Upon this shaft the rotor of the generator is mounted between the bearings of the wheel.

The revolving element is carried in two water cooled, self-oiling bearings. These bearings, the water wheel housing and the generator are carried upon a massive cast iron bed frame rigidly secured with heavy anchor bolts to a massive concrete foundation. The wheel discs are heavy castings carefully balanced and fitted with the necessary number and size of steel buckets to have combined maximum capacity of 2500 H. P. The buckets are cast semi-steel. The shaft is a hollow forged nickel steel shaft 11 inches in diameter at the generator hub and $9\frac{1}{4}$ inches in the bearing. The bearings are $9\frac{1}{4}$ inches in diameter, 30 inches long, ring oiling ball and socket type babbited with a high grade babbiting metal thoroughly peened in and scraped. Each journal barrel is exactly concentric with the machined ball joint and fitted in the concentric machined cast iron ball socket of the pedestal. The shell of each bearing is provided with oil compartments of large capacity and with water cooling compartments through which a constant stream of water is supplied. Oil is carried to the journals with heavy bronze parting rings. This construction insures perfect alignment, the uniform bearing of the shaft and a constant flooding with cool oil.

Water is brought to the wheels through a heavy Y casting bolted to the flanged end of the pipe line (each unit has an independent pipe line). The branches of the Y have attached thereto gate valves of the outside screw yoke, rising stem, Pelton type with nuts and seats of phosphor bronze. They are provided with worm gearing and roller thrust bearings to facilitate operating under pressure. Each gate has a suitable by-pass. There are two water nozzles to each main unit of the needle deflecting type, mounted on cast iron sole plates and provided with forged steel trunion pins working in gun metal bearings. The ball joints are packed with leather rings to prevent leakage when the position of the nozzle is changed. The nozzles are provided with hydraulic counter-balances and are connected through levers and rocker shafts to an automatic governor. A flanged nozzle tip is secured to the end of each nozzle, admitting of renewal. Tips of varying size are furnished from $5\frac{1}{4}$ to $6\frac{1}{4}$ inches in diameter. The quantity of water issuing from each nozzle is controlled by a

bronze needle which centers accurately with the center of the nozzle tip. This bronze needle is mounted on the end of a steel shaft and is operated with a hand wheel from the power-house floor. The needle end is so constructed as to always give a parallel flow of water concentric with the nozzle tip.

To provide for very accurate speed regulation a Lombard type Q, oil actuated governor is connected to the two deflecting nozzles with a set of levers and rocker shafts and the speed is regulated by throwing on and off the full stream of water. The governor itself is belted to the main shaft of the water wheel unit and receives its actuating oil under pressure from a storage oil tank having an air reservoir on top. This oil is kept under pressure by an oil pump operated with an independent water wheel. Each governor has a small motor mounted upon it which is operated from the main switchboard. The speed may be altered within narrow limits with a push button control. Should the governor become inoperative it may be disconnected by throwing a clutch and an auxiliary hand-control device then thrown into mesh enables one operator to control the nozzles.

The exciters are driven with independent water wheels and on these exciters no governors are provided. These wheels are mounted directly on the ends of the generator shafts and are covered with suitable housings. The speed of the Pelton wheels is controlled with rigid needle nozzles operated by hand and suitable gate valves. Water is supplied to these wheels with a six-inch pipe connection from the two main 30-inch pipe lines.

GENERATORS.

The main generators are 1200 kilowatt, 2200 volt, 3-phase, 25 cycle, 375 revolutions per minute, rotating field, engine type machines built by the Westinghouse Electric & Manufacturing Company. The rotating part is a solid steel casting pressed upon the water wheel shaft and carries the field coils. The outside frame carries the armature winding and is of the slotted type. The core is built of laminated steel of high magnetic quality built up and pressed upon a cast iron frame. The coils are ribbon wound.

coils held in the slots by overhanging teeth of the laminated steel core. The field current is carried to the field coils on the rotating part through cast iron rings. These generators are of extremely good regulation and efficiency and they require but 15% greater current in the fields when operating at 90% power factor than when operating on a non-inductive load. The efficiency at $\frac{1}{2}$ load is 92.75%; at $\frac{3}{4}$ load 94 $\frac{1}{2}$ %; and at full load 95 $\frac{3}{4}$ %. They are arranged so that the frame can be moved parallel to the shaft for access to the winding and field coils.

EXCITERS AND SWITCHBOARD.

There are two 70-K. W. Westinghouse type "S" 125 volt, compound wound, 575 revolutions per minute, exciting generators. These generators have considerable excess capacity for lighting and small power in the machine shop.

The current is controlled from the generators to the transformers through a six-panel blue Vermont marble switchboard.

The switchboard has a double set of bus bars and is so arranged that either bank of transformers can be operated from either generator, or the generators can be run in parallel. Each generator switchboard is provided with ammeters, poly-phase indicating watt meter, direct current field ammeter, field switch and two non-automatic oil circuit breakers for connecting either set of bus bars, also a synchronizing outfit and volt meter receptacle.

The exciter panel has the necessary volt and ammeters, rheostat mountings and switches.

The transformer panels are each provided with one ammeter and two single-throw automatic circuit breakers.

All the wiring from the generators to the switchboard and from the switchboard to the transformers is carried underground in 4-inch vitrified tile conduits.

TRANSFORMERS.

In order to take care of the output of the station and increase the voltage from 2200 volts to 33,000 volts there are two banks of three transformers each, the capacity of each transformer

being 500-kilovolt amperes, with another transformer as a spare. These transformers are known as the Oil Insulated, Water Cooled type, and in addition to the main leads there are auxiliary leads which permit of the use on the low tension side, of 1900, 2000, 2100 volts and on the high tension side of 28,500, 30,000 and 31,500 volts. They are so arranged as to be connected in groups of three, from delta on the high tension voltage to delta on the low tension voltage.

The transformer windings are flat coils, separated from each other by heavy insulation, wound upon a laminated core. The core has sufficient oil ducts through it to permit of efficient cooling. The transformer windings and core are enclosed in a boiler steel case and surrounded with oil. The oil is cooled with two sets of cooling coils made of seamless brass tubing spiral in form. Each transformer is mounted in a compartment by itself and a pipe is carried from the transformer into the tail race to drain off the oil should the transformer take fire or the oil boil over. The valve stem of the valve controlling this oil is brought out into the alleyway to insure safe operation.

The cooling water for the transformers is taken from the main pipe line into a tank placed at a slight elevation above the powerhouse and is then piped into the main generator room. It is here controlled by a set of valves. Independent connections are taken to each transformer and the overflow from each transformer is brought back to the generating room and discharged into an open funnel, thus enabling the operator to see that each transformer is getting the proper supply of circulating water. Thermometers are fitted into each transformer and have an electric connection so arranged as to make contact and ring a bell should the temperature of the transformer rise to a dangerous point.

HIGH TENSION SWITCHES AND ARRESTERS.

After the current is stepped up to 33,000 volts at the powerhouse it leaves the transformer house, passing through two sets of high tension switches. This arrangement is made in order that the high tension current may be cut off from each bank of

transformers. These two circuits are then united and carried to the main transmission line. Horn type lightning arresters with eight-foot horns and three-inch gap are tapped off the main line and the dead legs are carried to earth through a water resistance.

A set of choke coils consisting of 24 turns of No. 0 bare copper wire coiled in the shape of a spiral upon a 10-inch circle with 1-inch gap, are interposed in the main line between the lightning arresters and the main switches.

POLE LINE.

The line then extends through Hanalei Valley to the McBryde Sugar Company, passing over mountain ridges and through deep valleys for a distance of 35 miles.

The poles are 30-foot round cedar poles with 10-inch butts and 7-inch tops, buried six feet in the ground. The butts are protected by giving them two coats of crude oil before erection and again coating them at the ground line after erection.

The wires are carried in a triangle five feet apart and no transposition is made. The top pin is mounted on the top of the pole and the pole reinforced with an iron band $1\frac{1}{2} \times \frac{1}{4} \times 6$ " in diameter. Two other wires are carried on crossarms six feet long, 5"x" in cross section and slightly rounded on top. These crossarms are bolted directly to the pole with a $\frac{3}{4}$ " bolt and braced with $1\frac{1}{2} \times 3 \times 16 \times 30$ " braces. Where excessive strain is placed upon these crossarms, a double construction is used, that is two crossarms mounted opposite each other on each pole and two blocks are bolted to the top of the pole. The insulators are No. 316 Locke insulators, 11 inches in diameter by 11 inches high, the larger part of them being porcelain throughout; some, however, are porcelain tops with glass petticoats.

At some points where sharp turns were made in the line and where the spans are 200 feet or more two poles are used instead of one, the poles being separated from each other by about eight feet in a line at right angles to the pole line. Two 14' crossarms are placed on the poles and the wires carried on the same level at a wider separation.

The pins used on the line are of wood made from specially

selected eucalyptus stock. The eucalyptus is cut into 3-inch squares and air dried for two years before being used and then turned up and treated with a special paraffine compound. They are 14 inches high, have a 5-inch shank, two inches in diameter and are driven securely into the tops of the poles and into the crossarms. Where long spans are made and at bad corners a special pin of wood, iron and porcelain is used, the pin being a $\frac{3}{4}$ -inch bolt with a special head and a thread for the insulator of wood. The base of the pin is of porcelain.

WIRE.

The main line wire is seven stranded aluminum cable of 103,850 circular mills, equivalent in conductivity to No. 2 B. & S. gauge copper wire. The wire is secured to the top of the insulator with special soft drawn No. 3 B. & S. solid aluminum tie wire, a special sort of fastening being used.

The wire was received in lengths of 1500 to 3000 feet and splices were made by the use of a special aluminum sleeve. The ends of the wire were inserted from opposite directions through the sleeve, and with the aid of special tools the sleeve was then given three turns, thus twisting the wires together. The seven strands extending from each end of the sleeve were then expended neatly around the wire itself.

The use of aluminum wire on this line has been brought into question by some, but the consensus of opinion of those who have used aluminum wire seems to be, that due to improved methods of manufacture the product now furnished is reliable and that no trouble is experienced when aluminum wire is used due to breaking down or crystallization. The cost of stringing it is less on account of its weight, the joints now used are entirely satisfactory without the use of solder, and there is no appreciable disintegration of aluminum wire from ordinary atmospheric influence. Under usual conditions even on the sea coast aluminum is a durable metal as it protects itself with a thin impervious coating of oxide and in a test made on the Pacific coast six years' exposure near the sea coast shows a deterioration of less than 4-10 of one per cent.

The weight of aluminum wire is only 47% of the weight of copper of the same length and resistance. Conductivity is from 61 to 63 per cent. that of pure copper. Aluminum is a highly electropositive metal and it is therefore necessary to use aluminum ties and where other metal than aluminum is joined on to it great care should be taken to protect the joint from atmospheric influences with tape or insulation, otherwise the aluminum wire will be damaged by galvanic action.

The spans used on this line are mainly 130 to 140 feet, but in the mountain districts there are several spans over 300 feet and a maximum span of 470 feet.

The expansion of aluminum is nearly double that of copper, but as the strength is not as great it is necessary to give an aluminum line a definite amount of sag corresponding to the temperature observed at the time of erection. A set of curves were drawn and instructions issued to linemen to insure proper erection.

TELEPHONE.

On the main line poles there are two No. 12 copper telephone wires carried on deep groove double petticoat insulators supported on brackets, the upper wire is four feet from the crossarm and the lower wire on the opposite side of the pole five feet. Transposition is made every tenth pole. One telephone is installed on each end of the line in a specially built booth, the operator standing on a platform insulated from the ground with high tension insulators. Two 1000-volt transformers are connected in series between the telephone wires and the center connection between these transformers is thoroughly grounded, thus freeing the line of all static. The operator experiences no difficulty in communicating over this line.

The construction of the pole line presented many obstacles and the preliminary surveys were made with great difficulty. The line passes over high ridges between the valleys of Wainiha and Lumahai and between Lumahai and Waikoko, then across and through rice fields to Hanalei valley; it is then carried up a ridge to an extensive table land back of Kalihiwai to the mountain

divide between Kalihiwai and Wailua, this section being through a densely wooded country swampy under foot. It then passes along the divide and down the ridge to Wailua and along the base of the mountain range to a gap between Haiku and Lawai. It is then carried over the plantation lands and across several gulches to Hanapepe.

Trails were cut, and roads and bridges built to enable the contractors to take in materials and these were permanent in character to enable the patrolmen on the line to keep the line constantly patrolled. Where streams were crossed a sort of cable suspension was erected carrying a platform so arranged that patrolmen might cross.

HANAPEPE RECEIVING STATION.

At the McBryde end of the line, at what is known as No. 2 pumping station, is built the receiving station of the high tension line. There is one set of high tension switches, choke coils and lightning arresters similar to those at the power house. Four cells built of concrete contain the receiving transformers. These transformers are connected in a bank of three delta to delta with one transformer as a spare, the current being stepped down from 33,000 to 2200 volts. These transformers are Oil Insulated, Water Cooled type of 875 K. V. A. capacity. The low voltage current is carried to a set of bus bars in an adjoining room to a switchboard which controls the distribution on the McBryde plantation.

PUMPING MACHINERY.

At the present time there are installed and in operation on this service four large pumping units consisting of:

Two 500 H. P. motors, each connected to a two-stage high-lift centrifugal pump of 5,000,000 U. S. gallons daily capacity against a head of 341 feet operating at 735 revolutions per minute.

One 500 H. P. motor direct connected to a two-stage high-lift centrifugal pump of 6,500,000 U. S. gallons daily capacity against a head of 260 feet operating at 735 revolutions per minute.

One 150 H. P. motor direct connected to a high-lift centrifugal

pump of 3,500,000 U. S. gallons daily capacity against a head of 168 feet.

The three first mentioned pumps were built by the Buffalo Steam Pump Works at Buffalo, New York, and the last by the Byron Jackson Machine Works at San Francisco, Cal.

All of the motors were supplied by the Westinghouse Electric & Manufacturing Company.

Current is also taken to the mill, a distance of three miles from the receiving station, and used there on small motors and for lighting.

PUMP EFFICIENCIES.

The pumps which are used on McBryde are of the high-lift turbine type. A complete description of the pumping apparatus built by the Buffalo Steam Pump Company appeared in the Louisiana Planter on September 8th. There is also an article in the July number of the Engineering Magazine which covers several makes of this type of pump, the McBryde pumps being included. * * *

I do not pretend to be an authority on this class of machinery, but from every indication these pumps promise to give extremely satisfactory results. All the parts are rotating and without valves, the runners are both mechanically and hydraulically balanced and it is a safe prediction that the absence of valves and reciprocating parts will result in extremely small repair bills.

These particular pumps were tested carefully at the works of the pump maker where electric current in sufficient amount and of the correct number of alternations was readily obtainable. The water was measured and the input of electric current to the motor was indicated by meters, the motors were tested for efficiency at the works of the manufacturer before shipment and rarely has an opportunity been presented for determining with equal accuracy the efficiency of any pumping machinery.

* * * The efficiency of the pump remains practically stationery between two-thirds of the capacity when pumping against a head of 325 feet to its full capacity when pumping against a head of 260 feet, namely 76 per cent. At a point about

seven-eighths of its capacity it shows an efficiency of 77 per cent. This I feel will compare very favorably with a reciprocating pump driven with a motor and belt if we consider the losses due to the belting, counter shafting, the many unbalanced parts, slip in the valves and cylinders and friction in the water cylinder packing.

I am not familiar with efficiencies obtained on reciprocating pumps throughout the islands, but I have a firm conviction that there are many of them not giving the efficiencies shown by this high-lift turbine unit.

I have often been asked what efficiencies applied in an electric plant throughout the entire plant. This efficiency will vary widely, depending upon the construction and the class of apparatus installed. The electric and hydraulic apparatus in the plant of the Kauai Electric Company is of as high efficiency as it is possible to obtain at the present time.

The entire electric machinery was furnished by the Westinghouse Electric & Manufacturing Company and the hydraulic apparatus by the Pelton Water Wheel Company. The efficiencies applying here may therefore be cited.

The guaranteed efficiency of the water wheel is 80 per cent., but this efficiency probably reaches 82 or 83 per cent. when operating under its most economical load with a full stream on the buckets. The efficiencies of the electric apparatus are as follows:

Generator, 95.75 per cent.; step-up transformers, 97½ per cent.; line, 92 per cent.; step-down transformers, 97½ per cent.; 500 H. P. motors, 92 per cent.

Taking these efficiencies into account the amount of power which can actually be delivered to the motor shaft at McBryde Sugar Company, 35 miles away, is 80 per cent. of the generator output, 77 per cent. of the power on the water wheel shaft and 61 per cent. of the theoretical power in the water. Accepting an efficiency of 76 per cent. for the pump the total water which can be delivered will be 46 per cent. of the actual water flowing into the pipe line at Wainiha.

From the description of this plant the layman may receive the impression that the entire plant is very complicated. The con-

trary is the case. The effort has been in making this installation to have all the apparatus and equipment as strong and as suitable for continuous and hard operation as possible. The station may be operated by one man on watch and the pumping equipment is far simpler than the station equipment.

The plant has now been in operation over a year without a breakdown of any kind. This augurs well for its capability in all parts to stand hard and continuous use.

NEW IRRIGATION WORKS.

The New Waihee Canal.

IN June last was completed the new Waihee canal, on Maui; water being turned in on May 15th, in the presence of officials of the Wailuku Sugar Co., visiting Congressmen and others. This new water course for the Waihee, Wailuku and Waikapu cane fields has its origin just below the Aliele Falls, two and a half miles up the Waihee valley, at an elevation of nearly 650 feet above sea level, and in its course of 10.62 miles twenty-two tunnels have been pierced, varying from 155 to 2,246 feet in length; thirty-nine flumes of 2,764 feet in length; pipe lines 1,253 feet, and open ditch of 35,549 feet, or 6.73 miles in length, have been constructed.

The dimensions of the tunnels are: Center height, 6.5 feet; sides, 4 feet; bottom width, 5.5 feet, and width at spring of the arch, 6.5 feet. All the tunnel cutting was done by Japanese. The formation in the main tunnels was principally lava rock. In that of tunnel No. 2, of 2,446 feet—the longest in the series—very hard close-grained rock was met with, requiring eighteen months for its penetration and completion. Compressed air and percussion drills were used in this and several other tunnels to furnish power and, incidentally, air.

This new supply source is some 4,600 feet mauka of, and 225 feet above the old Waihee ditch. The cement lined water-way

from the dam and head gates is located along the south bank of the Waihee stream, well above the flood line. Passing through its first tunnel the conduit extends some 2,000 feet to the next tunnel, thence continuing, still tunneling the spurs and ridges forming the foothills of the high mountain range of West Maui, spanning the gulches by flumes and coursing by and through cane fields by open ditch to the north bank of Iao valley just back of the town of Wailuku; thence by inverted syphon across Iao valley, then through cane fields to the Waikapu valley in open ditch where by two final tunnel cuttings under the Waikapu stream it is conveyed to new lands of Waikapu and Puuhele common, where several new reservoirs are located for conservation and distribution.

The steel pipe line crossing Iao valley is 1,253 feet in length and three feet inside diameter, conveying the water under the bed of Iao stream, and delivering it into a cement basin thirteen feet in diameter, thence through a tunnel to a permanent weir where the flow of the canal can be accurately measured at all times. This additional water supply not only insures a better irrigation system to existing fields by or through which it courses, but will bring under cultivation new areas of considerable extent.

The capacity of the conduit is 45,000,000 gallons in twenty-four hours, or 69.81 cubic feet per second after due allowance for seepage and evaporation. Its cost is placed at about \$160,000, which is borne between the Wailuku and the Hawaiian Commercial Sugar Companies in the proportion of 7/12 to the former and 5/12 to the latter.

The construction of the canal was the result of an exchange of land and water rights between these two corporations in settlement of their respective rights to the waters of the Iao valley, which had been in litigation for years past. By this mutual exchange the Wailuku Sugar Company acquires a new tract of desirable cane land, and it will enable both plantations to perfect their system of irrigation, adding materially to the value of their estates.

Chief Engineer Jas. T. Taylor was the constructing engineer throughout this work, locating, designing and completing the same.

THE KEKAHA DITCH, KAUAI.

Another link in the chain of important irrigation works constructed in these islands for the better development of cane culture is that of the Kekaha-Waimea Ditch, on the Island of Kauai, for bringing out the water of the Waimea stream onto the lands of the Kekaha Sugar Co., which work was brought to completion this past summer at a cost of \$275,000.

From an account by its constructing engineer, J. S. Molony, actual survey for the ditch was entered upon about the middle of April, 1906; contracts were let and construction work began two weeks later.

This ditch has its source at an elevation of 550 feet on the Waimea branch of the river, eight miles from the sea. The intake is by means of a tunnel which enters a deep pool, below the surface; and the water is admitted through two grated openings, each five feet by six feet; no dam is required. Passing through a series of tunnels inside vertical palis 600 feet high, then by ditch through fields of loose rocks of great size, or by raised ditch fittings on to the ground, the water is led for four and a half miles to the edge of a plateau above the river. At this point it crosses the Waimea valley by means of an inverted syphon of steel pipe of 48-inch and 42-inch diameter and 2190 feet long, and delivers into tunnels 8, 9 and 10—350 feet above the Waimea flume.

Emerging from here, the ditch traverses gently sloping ground, passes through tunnels 11 and 12, and reaching the open ground above the village of Waimea, it bends to the west and heads for Kekaha. Here the country is much broken by a series of rocky gulches, one after another; tunnels 13, 14 and 15, and two inverted syphons of wooden stave pipe, each 700 feet long and 40 inches diameter, are on this section. This upper ditch is 16 miles long and ends at Waiawa gulch.

The tunnels are eight feet wide and six feet high; they have an aggregate length of 8,660 feet and were driven, for the most

part, through very hard rock; the ditch has a capacity of 55,000,000 gallons per day above the syphon across the Waimea valley and 45,000,000 gallons below; the size of the former being nine feet wide at the bottom and four feet six inches deep; and of the latter eight feet and four feet three inches. The surplus water will be turned back into the river from the syphon; yielding 750 horse-power without other expense than the cost of the machinery, as well as supplying the needs of the taro and rice growers lower down the valley.

No flumes are used, except for a few gulch crossings. At Waiawa the water is dropped 280 feet to a lower ditch, nine miles long, that will convey it to Pulihale—the end of the plantation—where the palis shut off the road at the Barking Sands.

The drop at Waiawa can be utilized for generating electric power for the plantation.

In the mauka section there was some heavy work necessitating considerable masonry and concrete; while makai the ditch was, for the most part, cut through solid rock with the floor and sides cemented afterward.

The water is now flowing to the cane fields through sixteen miles of ditch.

About 600 men were employed; the tunnelmen, masons and mechanics were Japanese; while Koreans, after experience in the use of tools and powder, were found better able to withstand the climate makai.

The features of the country presented great difficulty in the construction; yet, as no part of the ditch was more than ten miles from the plantation office, much assistance was given the ditch by the Kekaha Sugar Co.; and this, notwithstanding the heavy rains and freshets of the past winter and other setbacks, has largely contributed to the early completion of the work, water being admitted at the intake July 15, 1907, fourteen and a half months from the start.

STORIED NUUANU.

BY ARTHUR JOHNSTONE.

Nuuanu Valley is romantic ground!
Here every knoll and dingle hath its tale,
Woven from legends stark of lonely swale
And Pali steep! Aye, long ago, to sound
Of savage warfare waged by Chiefs renowned,
Th' historic Vale was scarred with bloody trail.
E'en now the bent ear hears the wild death-wail
Of warriors, in the winds which still rebound
The cliffs along; or, in the depths the eye
Doth catch the twinkling of spry Epas' feet
Where, 'neath the trailing clouds which not half hide
The tropic moon, they dance in circles nigh
To sound of falling waters—requiem meet,
Where mouldering heroes dim for aye abide!

MY friend, the Antiquary, is responsible for that which follows. It was in this wise: I made a casual call on him lately, and found him as usual to the elbows i' the midst o' a pile of historical and legendary notes and clippings of the dim and distant past. During the half hour's delightful conversation which followed, I inadvertently mentioned that I was getting some notes about the romantic Vale of Nuuanu in contemplation of the art preservative. This proved more than unwise on my part, for the Antiquary boldly thrust his hand into a high nook and at once placed in mine a sheaf of long-since-gathered jottings on the mythical, traditional, and historical lore of this beautiful and romantic valley.

Out of these delightful gleanings of the past I have brought together in briefest mention a few of the forgotten facts which will appeal directly to the wayfarer of today, or perhaps shall awaken memory in some of our older islandfolk to an end that the present record may be supplemented. At present, owing to the space limit, it becomes necessary that the romantic side of the "sequestered vale" must await some more fitting occasion; yet even here it is impossible to pass without mention of the name of Charles Warren Stoddard, or "Charlie Stoddard," as he was familiarly called by old-timers in the seventies and early eighties.

since when his name has become permanently enwrought with the romance of the valley.

In fact, Stoddard once dwelt just back of the Nuuanu Cemetery, on the Waikiki side of the valley road, and has left us a delightful literary pastel thereof under title of, "My Late Widow," in that quaint volume which he has named "The Island of Tranquil Delights"—an idyllic book as thoroughly realistic as it is Stoddardesque. Well do I remember one of the mental notes which he made on the Nuuanu Valley during a conversation that occurred nearly a quarter of a century ago. Some one had said (we were several newspapermen casually met) that stories were difficult to find in the islands in spite of the favorable conditions. Thereat Stoddard slowly raised his hands and eyes—a peculiar trick of his—and exclaimed in his usual drawl: "Good 'stuff' hard to find here! I'll venture to say that if the romance of Nuuanu Valley were written up as it should be, you fellows would be able to fill a moderate-sized library by that you were through."

And Stoddard was right, for the Vale of Nuuanu abounds with memories and traditions of the past, which, by taking but a little pains, shall deck the structure of many a quaint tale of historical reminiscence. In the old days, before and since the memorable Battle of Nuuanu, when Kamehameha routed the forces of Kalanikupule and drove the remnant of the hosts of Oahu pellmell over the sheer pali to final destruction, the valley was a veritable garden, glistening with verdure and teeming with fat. On either side of the Vale the native water-courses, taken from the two streams which flow so uselessly today, nourished innumerable taro-patches that filled the floor of the valley, like the inlaying of a continuous mosaic of plenty. Throughout its length the valley was dotted with comfortable grass houses and sustained as many families as there were cultivated acres.

What havoc must the bloody battle of that stern-browed conqueror have made here! It is generally believed that it was just a little above the Queen Emma place (at present occupied by Mr. James G. Spencer), that is to be located the decisive point of the battle; for it was there a well-directed shot from John Young's cannon brought death to the restless and ambitious Kaiana, and

scattered the forces of Oahu, some to the hills and valleys beyond, and drove the rest to a swift destruction over the famous pali, as mentioned. Then came the sorrowful celebration of that decisive victory in which the body of Kaiana, with those of the other slain chiefs of Oahu, was sacrificed in the pomp of savagery at the Leahi heiau, or temple.

Around the spot where John Young planted his decisive cannon for the victorious Kamehameha, cluster several less bloody and more blessed historic localities, when viewed in the light of peaceful economics; for just below this famous battle point were the ground of the old Royal Hawaiian Agricultural Society, which, as the record shows, flourished through the fifties and well up to the year 1865. But even after the organization had passed its period of activity, its beneficial influence was felt as the original nursery of our infant industries which have since done so much to sustain and beautify the islands. An instance of the society's practical work is to be drawn from the several years when it was under the management of Mr. H. Holstein, to whose faithful services and wide experiments in planting the islands are largely indebted for the present extent and success of rice culture. Since then, in truth and fact, the industry has proved to be a profitable as well as a provident venture.

On the opposite side of the highway, on the premises occupied by Hon. John A. Cummins, was located the old Ice Works, a point of much economic interest in its day (unpretentious as the works were) to the tropical thirst which held in thrall the commercial side of Oahu, and especially the Capital City of Honolulu, where kings and commons quaffed alike, and often. Nay, I have a dim recollection of having seen two decades gone Wilder's black, iron-bound ice chests on the local steamers between islands, which will account for the cooling cups not infrequently enjoyed in plantation porch and wayside hostel throughout the group. But the old ice works were noted in another degree. They were famous for their pigeon cotes, which, in that day, supplied the royal larder and many a private board beside; until between cooled drinks and Epicurean squabs, an ample host had been found to arise and cry blessings on the rusty old ice works of Nuuanu.

Just opposite Queen Emma's place was the old Makee homestead, surrounded by its unequaled rose garden, which, the old-timer is fain to declare, outrivaled aught that may be read or imagined, by the dreamers of today, of the rose gardens of Persia. But suddenly this paradise of the valley vanished—destroyed by sacrilegious hands—after the Makees removed to Maui Island and established the "Rose Ranch" on the mountain slope at Ulupalakua, where even at this late day may be seen some of the horticultural efforts of a half century since. Twenty years ago, during its decadence, I spent a few brief hours at the "Rose Ranch," but even in its ruins I marvelled at its departed splendors and tried to imagine what had been its Halcyonian days and delights—what it once must have been when tenanted by gay throngs and supplied with its luxurious table. It was not, however, until several years after that I fell across Charlie Stoddard's curious fragment called, "Plantation Days," which fulfilled my daydream by giving a detailed and delightfully characteristic account of that earthly paradise hid in the mountain's warm breast.

At Waolani, or the Rooke Valley, abreast of which now stands the new Country Club's building, is to be located the traditional home of the Eepas, a tribe of elfishfolk who were wont to play all sorts of pranks on all conditions of people; but, 'tis said, to meet one of these little fellows while wayfaring or sightseeing was deemed by the simplefolk of the valley to be an omen of misfortune. There, also, was located the workshop of the familiar Menehunes, or Brownies, and it was at Waolani that these little people built Kekupua's canoe, which, as the published legends inform us, was left stranded when daylight drove them from their task of hauling it to the shore. Another point of historic interest will be found at or near the entrance to Waolani, where is placed the site of the first temple, or heiau, of Oahu. The building of this ancient temple is credited to Wakea and his time, and it seems that between the elves and wizards of the neighborhood there was established, as so many watch towers in connection therewith, a chain of some half a dozen heiaus which topped the ridges between the Nuuanu and Kalihi valleys. But these things have flitted into the dusk of yesterdays, and shall not return as

long as the modern sportsman chases his golf ball over the once sacred demesne of Fairyland, and its confines are made hideous by the agonizing acoustic of the modern automobile.

Near the pali lies Luakaha and its interesting neighborhood. For many years it has been the summer resort of the Athertons and Cookes, whose natural generosity has enabled many to share its hospitality and luxurious comforts. But Luakaha is said to have always been famous for its mercantile associations, and that it has held almost continuously a like attraction for our merchant princes, even from the time of Pelly of Hudson Bay Company fame.

Just above Luakaha are the ruins of the summer residence of Queen Kalama, consort of Kamehameha III. The ruin at present consists of four delapidated walls of stone, which, it is said, certain ill informed persons delight to point out to strangers as the ruins of an old temple.

In this locality was spread the largest royal feast ever given in the Islands—at least in modern times—on the occasion of the celebration of the Restoration of the Islands from their premature seizure by Lord George Paulet in February, 1843. In reading over the too brief descriptions which remain to us of this great international event, one is struck with the fact that probably since the days of the Earls of Warwick there is hardly to be found a suitable comparison for the great island feast of Kamehameha III.

Our story of the English feast given at Kenilworth Castle by Robert Dudley

“To good Queen Bess of England,
Proud daughter of the realm,”

is quite reliable, for hath not Master Robert Laneham, whom Sir Walter Scott for some unaccountable reason called “as great a coxcomb as ever blotted paper”—yet a very accurate chonieler withal—told us how it cost the generous Earl of Leicester £1,000 a day for more than a fortnight for her entertainment? Nay, we can well imagine the extent and luxuriance of the Earl of Leicester’s civility to Queen Elizabeth when we read Master Lane-

ham's quaint confession that it took 340 hogsheads of good English Ale to wash down the solid food of that continual revelry.

But for a semi-Savage affair—barely on the edge of civilization—all must agree that hardly in extent, though confined to a shorter time, the great feast of Kamehameha III falls not far behind that of the lavish and patriotic Earl of Leicester, as the following brief note will show: Provision was made for 12,000 guests, and it is estimated that as many as 10,000 sat at the entertainment in July, 1843. The procession which accompanied the royal party and cabinet to the feasting place at Luakaha, contained, beside the military, a thousand horsewomen, riding five abreast, all dressed very like, wearing palm leaf hats and Spanish ponchos, gay with ribbons and floral wreaths. These were followed by 2,500 horsemen, probably as gay and rollicking an army on peaceful mission bent as ever wended through the historic Nuuanu Valley.

I am able to give a comparatively accurate list of the provisions collected for this period of feasting. There were brought to this extensive gastronomic altar "271 hogs, 482 large calabashes of poi, 602 chickens, three whole oxen, two barrels of salt pork, two barrels of biscuit, 3,125 salt fish, 1,820 fresh fish, twelve barrels of luau and cabbage, four barrels onions, eighty bunches of bananas, fifty-five pineapples, ten barrels of potatoes, fifty-five ducks, eighty-two turkeys, 2,245 cocoanuts, 4,000 heads of taro, 180 squid, besides oranges, limes, grapes and various fruits."

This great feast and celebration was accompanied by a genuine Hawaiian program, which included an exhibition of ancient games, followed by recitals and meles and olis, and in the evening, or probably far in the night, concluded with a "hula concert" to the smiting of drum and calabash, which in this modest age had better be imagined than described. Yet dropping out the offensive and adding here and there touches of barbaric grandeur, and setting the whole against the towering scenic background of the Nuuanu Pali, I doubt not that this last of our great island feasts shall compare favorably with the splendors which Robert Dudley prepared England's Queen in days hardly less rude, from our modern point of view.

But the savage feast is over, yet let us quaff one more cup of romantic wine ere we leave the historic vale for the present. The Nuuanu Pali now rises just before us and if we reach its edge we too, like thousands before, shall see the magic view which Nature forever hides or changes as under a veil. No two have ever seen that wonderful vision of land and sea with the same eyes, since it hourly varies, often betwixt sunup and sundown. But, once seen, all shall carry through life their first impression of their view from the famous pali. Mine was written many years ago for another occasion, and it is the guise under which the scene always re-appears whenever my eyes are closed in revery:

“As we wended up the valley after an early breakfast, quite an hour before the sun had driven the vapors from the pass, I feared that we soon must be wet, so threatening seemed the low-hanging clouds which continually dropt moisture along the hill-sides on either hand; but Maile, my guide, told me we had naught to fear, and so it was; for ere we reached the pali, or precipice, which divides the Island at the center, we were riding in the sunshine, through occasional light and fairy-like showers to be sure that fell from a cloudless sky, but drying almost before they touched the earth.

“It was a glorious ride, for by this time the lazy grey-white clouds were climbing the Koolau sky and peeping over the heights above us. When we reached the top the trades were just beginning their daily rush through the wedge-like gorge, and as we rode under the rolling cloud-masses that seemed almost within reach, the island panorama opened before us, and, ere we descended into the gardens of the blest, stretching away at our feet for miles on either side, kind Nature allowed us one of those scenic effects which none but the earliest of travelers may see. Far beyond the fertile plain, but rapidly nearing it, came racing in from the sea one of those grey, phantastic rain-clouds borne on the air currents which circle the long oval bay; and as the sea-cloud came on it partook of Portean changes and always seemed emerging from a halo of mist—always was zoned by a girdle of rainbows which at times seemed to outdazzle the sun. For a

moment it hovered near the shore-line, when suddenly plunging earthward, it swept over green fields and cosey hamlets, following the great cup of the mountains, and dropping the blessed rain in long lace-like tendrils on the paradise beneath."

Reader, this is but a wee bit of the fact and fancy born of the Vale of Nuuanu, and much more remains to be written of the storied and romantic valley.

FEDERAL EXPERIMENT STATION REPORTS.

THE various reports issued from time to time upon the work of the Hawaii Agricultural Experiment Station, indicates the thoroughness of investigation by the Special Agent in charge, Jared G. Smith, and his staff, on subjects calculated to render material aid in diversifying agriculture in these islands. This paternal labor for the benefit of the Territory in general, and the farmer in particular, has proven the feasibility of tobacco culture of superior quality; the profitable outlook for rubber; besides seeking to extend the varieties of tropic fruits having better shipping qualities, and demonstrating the possibilities of distant markets for our products.

The Annual Report of this Station for 1906—its sixth—issued September, 1907, from the Department of Agriculture at Washington, besides covering the year's work in the lines indicated above, contains report on several other tests to revive past industries and improve existing ones, as also an exhaustive article on "Organic Nitrogen in Hawaiian Soils," by E. C. Shorey, Chemist, and one on "The Economic Seaweeds of Hawaii and their Food Value," by Minnie Reed, Science Teacher, Kamehameha Training Schools, which is the most complete paper yet published on the subject.

In the Hawaiian Annual for 1902 was given Miss Josephine F. Tilden's "Collection of Algæ from the Hawaiian Islands," covering the list of 100 varieties, so far as classified, the result of a

summer vacation study of two painstaking investigators. The present paper embraces, besides the list of edible algæ of 71 varieties, methods of gathering; serving, and preserving limus; popular and abundant kinds; methods of cultivation; value and amount sold in market; value imported by orientals; limus for medicine and incantations; analysis and comparative food value, with other valuable observations and notes, which give it interest and value.

RETROSPECT FOR 1907.

MAWAII has moved on in the even tenor of her way this past year, with little internal commotion or external mishap, as last year, affecting us. We are certainly a favored land. Following a winter season of copious rains the generous distribution of summer showers throughout the group has greatly benefitted both agricultural and pastoral pursuits, and with the exception of occasional "off days" the weather has been delightful. There has been less friction apparent in public questions that have arisen; business has continued with less changes than usual; the legislature held a short session for the fair and expeditious transaction of its business; the public health has been safeguarded from threats without and within; a change in the executive transpired with a spirit of satisfaction to all political parties that is remarkable; we have been honored by the visit of a large Congressional party of investigation as to the needs of the Territory, and enjoyed the welcome call of the "Big Four" cruisers, en route from the Orient to San Francisco. These and other subjects in the events of the year are detailed as follows:

THE LEGISLATURE.

The new legislature convened in February, as usual, the Senate organizing with Hon. E. Faxton Bishop as President, and the Representatives with Hon. H. L. Holstein as Speaker, and conducted itself with commendable spirit and (for the first time in its

history) completed its business without extension of its session of sixty days. A number of good laws were enacted and some wise vetoes sustained, and it is to be regretted like wisdom was not exercised throughout instead of pandering to office-seeker's clamor by the passing of a municipal act for the City of Honolulu toward the end of the session, and allowing itself to be stampeded against law, order and commonsense, in the interest of a self-styled healer.

A far-reaching beneficent act because of the possibilities it opens up, is the provision made for the establishment of an Agricultural College for the training of our youth in scientific lines, and thus aid the movement of intelligent, diversified industries in these islands, and in keeping with plans of the Department of Agriculture at Washington. The Governor appointed as its Regents: H. E. Cooper, W. G. Smith A. Gartley, M. Campbell and C. F. Eckart. J. E. Roadhouse of the Technical Institute, of San Luis Obispo, Cal., has been chosen as its first Dean.

The Nuuanu dam troubles were investigated by a special committee, as is mentioned elsewhere, and also the exchange sale of Government lands on Lanai, both of which made full reports.

At the close of the session its expenditures showed \$14,737.37 by the Senate and \$29,587.76 by the House, which, with the estimated additional expense for printing and Journal of \$10,000, would total \$54,325.13, toward which the federal appropriation of \$30,000 for this object was applied.

For the session's work there were 401 signed bills by the Governor, and 31 vetoed bills, of which 14 were sustained. Thirteen other bills met with "pocket veto."

OFFICIAL CHANGES.

Close upon the termination of the Legislature it became generally known that Governor Carter contemplated resigning before his term of office expired, and much speculation was indulged in as to his successor. In due time announcement was made that Chief Justice Walter F. Frear was the President's choice for the responsible position, which choice met with general commendation throughout the Territory, irrespective of party. August 15th

was the date selected by the retiring governor to transfer the cares of State and preparations for the inaugural ceremonies were made accordingly, which took place in the "throne room" of the Executive building on the date above mentioned, in the presence of Territorial and Federal officials, leading citizens and public general.

Following the retiring address of Governor Carter the newly appointed Secretary, E. A. Mott-Smith, read the commission of governor issued by President Roosevelt to Walter F. Frear, whereupon Chief Justice Hartwell administered the oath of office. The new governor then delivered his inaugural address (given in pages 79-89 in this issue), after which a general reception was held and the various officials, prominent citizens and others, took advantage of the opportunity for congratulations befitting the occasion.

The above change of the Executive has necessitated the following changes in the Judiciary and Cabinet:

Alfred S. Hartwell, Chief Justice, vice W. F. Frear, promoted to the governorship.

Sydney M. Ballou, Second Associate Justice, vice A. A. Wilder, promoted.

Ernest A. Mott-Smith, Secretary of the Territory, vice A. L. C. Atkinson, resigned.

Chas. R. Hemenway, Attorney General, vice E. C. Peters, resigned.

Marston Campbell, Superintendent of Public Works, vice C. S. Holloway, resigned.

CONGRESSIONAL PARTY VISIT.

By invitation of the Territory and appropriation of \$15,000 for its expense, a party of Senators and Congressmen, numbering some sixty persons, visited the islands in May, spending three profitable weeks visiting the different islands in their inquiries on various questions affecting our interests. The agricultural conditions and diversified industry possibilities were investigated; our land system considered; immigration and labor problem looked into; the unjust working of the coastwise law in its application

here; our defenseless position, and breakwater and lighthouse needs demonstrated. A belated party came a few weeks later, spending a like period in touring the islands and investigating its needs and possibilities. The advancement of Hawaii and the progress of her schools was a revelation to the majority of these visiting statesmen. It was an enjoyed educational season to them, as all admitted, and will enable Congress to deal understandingly with Hawaiian questions that may come before it from time to time.

LOS ANGELES EXCURSIONISTS.

The Los Angeles Chamber of Commerce excursion party comprising 113 men and 133 women, arrived in March, per chartered steamer Ohio, for the round trip and a short stay at Hilo and Honolulu. They first visited Hilo, to enjoy its exceptional scenery and volcano experiences, where a big luau was given in their honor. On reaching this city they were as cordially entertained and shown the attractions of the metropolis and its suburbs, and the strides made in our pineapple industry at Wahiawa. During their visit a reception was given them at Ainalāu.

NUUANU DAM INVESTIGATION.

Notwithstanding the amended plans for the construction of the Nuuanu dam according to the Kellogg plans—as mentioned in last Annual—troubles of various kinds occurred to keep the subject fresh and unassuring before the public. As a result, a special committee of investigation thereon was appointed by the legislature to examine and report. In pursuance thereof Mr. J. D. Schuyler, C. E., of San Francisco, was sent for to come and investigate the work. After careful examination he passed upon the work and allayed the feeling of alarm that had existed. With certain improvements and enlargement to a capacity of 3,300,000 gallons, he recommended that \$132,000 additional appropriation be made for its completion, which was duly made. In the meantime the new governor assigned to Secretary E. A. Mott-Smith the duty of examining all documents relating to its construction for

his deductions thereon, resulting in terminating the existing contract, preparatory to new arrangements for its completion.

IMMIGRATION MATTERS.

The successful opening of the movement to obtain settler laborers from Europe by the Board of Immigration, as shown in the last Annual, under charge of Mr. E. R. Stackable, in the arrival of the *Suveric* with 1,325 Portuguese from the Madeira Islands was followed in March by a goodly company of settlers from Malaga, Spain, per S. S. *Heliopolis*, which arrived here April 26th with 2,287 Spanish immigrants, of which 500 were children. In the distribution of these people to our different islands much satisfaction is expressed as to their character and capabilities. Over 300 stayed on Oahu, 100 going to Waialua; 332 went to the Hilo district, and over double that number to Maui.

June 27th the S. S. *Kumeric* arrived with 1,057 additional Portuguese, comprising 189 families; 306 males, 241 females and 510 children.

The second lot of Filipinos, 26 men, two women and two children, arrived February 25th per *Nippon Maru*, and the third (and probably the last) shipment came by the same vessel July 29th, 44 in number, consisting of 28 men, nine women and seven children.

The effort to procure laborers is suspended for the present, while that of the Filipinos is admittedly abandoned, owing to the obstacles besetting the movement, and its expense.

Of the Japanese immigration it is difficult to arrive at a clear solution of the complex problem. The systematized method of Japanese emigration companies to bring Japanese into the Territory for a brief stay, and then to forward them on to the Coast, together with such of our domiciled labor as could be induced by various allurements to leave plantation and domestic service, which was creating alarming conditions, was suddenly checked by the Immigration Act of Congress of February last, which excludes Japanese coolies coming to the United States from Hawaii and the Philippines. Agents and agitators in this city worked up a mass meeting of their countrymen and denounced the Act

"in the name of humanity, civilization and liberty in that it enslaved them permanently to Hawaii's capitalists." In spite of the law quite a number took successive steamers for San Francisco. This gradually ceased, then special boats were chartered to convey them to Vancouver. After much effort and various delays three ship loads of Japanese from these islands were landed at that port—which exodus the interested parties threatened to continue—but the movement met with a vigorous protest from the labor party in that city. Threats of dire consequence for breach of treaty was in the air for a time, but it is now learned that Canada's refusal to admit Japanese laborers from Hawaii will not be regarded as a breach of the treaty with Japan.

By revision of agreement with her Emigration Agencies the Japanese government now limits the number for Hawaii to 200 per month.

PLANTATION MATTERS.

Elsewhere is shown the completion of two ditch projects for the irrigation of cane lands. A result of the Kohala scheme (reported in last issue) follows early in the incorporation of the Puakea Plantation Co., to take over the interests of the Puakea Planting Co. and extend their operations on lands of the Wight Estate, and will develop the tract by aid of the ditch opened up last year.

Kemoo Land Co., holding lands in Waialua, Oahu, plan to plant the same in cane and will operate tributary to the Waialua Agricultural Co.

The Olaa Plantation, as an encouragement to settler-laborers offers an acre of land in fee to laborers who work steadily with them for three years at regular wages. So far, fifty Portuguese and thirty Spanish families have taken up the proposition.

The year 1907 is the banner year of Hawaii's sugar crop, being 440,017 tons, the next largest being that of 1903 with 437,991 tons.

The Hawaiian Commercial & Sugar Co., of Maui, also takes honors this same season, having turned out 44,130 tons, said to be the banner plantation crop of the world.

The Honolulu Plantation has added a filtration plant to its re-

finery outfit, thus putting it in position to turn out a refined product of sugar fully equal to that produced elsewhere, which should find a local market and leave no field for future importations.

FRUIT SHIPMENTS.

Prof. J. E. Higgins, of the Federal Experiment Station, personally conducted another fruit shipment to the mainland this past summer, consisting principally of pineapples and avocado pears which were carried as far East as Chicago, and introduced to the trade there in perfect condition. Favorable rates were also secured from the railroads for future shipments of tropic fruit, so that it now remains for the grower to simply place them on the market. Wherever these pines and pears were shown much interest and enquiry has been manifest. Mangoes and papayas, in addition, were delivered in good order at several of the Pacific Coast cities.

THE PINEAPPLE INDUSTRY.

As intimated in last issue the pineapple and canning industries were extending their operations in several directions and this year gives evidence of the rapid strides it is making toward a leading place in the commercial enterprises of the Territory, not only in the increased amount of the canned product, but the new and extended fields brought under cultivation, that steps are already in progress for still further increasing the canning facilities at several points. In this connection it is appropriate to mention that Castle & Cooke, and Brewer & Co., two of the leading sugar agencies of this city, have assumed the agency of some of these canning concerns.

In June the canning factory of the Hawaiian Pineapple Co. at Iwilei, enlarged from the plant at Wahiawa, began operations with cans supplied by the American Can Co., also at Iwilei. During the busy season the cannery employs 300 hands, one-third being women and girls. Its season's pack just closed is given as two and a quarter million cans.

The Hilo cannery, completed this year, and making its own

cans, turns out as its first season's work 4,000 cases. Bruner's cannery, in Kona, a well equipped concern and making also its own cans, completes its season's work with some 6,000 cases, and expects to largely exceed this next year.

The Haiku Co., of Maui, reports a very successful season, with a bright outlook, and Kauai reports also indicate satisfactory progress.

With the favorable result and report on the fruit shipments to Chicago, the outlook for the export of fresh pineapples should soon make its impression.

BUSINESS MATTERS.

The corporation of C. Brewer & Co. declared a million dollar stock dividend in July last, its reserve fund accumulation of several years, doubling its capital stock and issuing 10,000 paid up shares to its fortunate shareholders.

Catton, Neill & Co. are constructing a new machine shop and a power house at Kakaako, to meet the needs of their extending business.

The Commercial Club had its opening July 20th, 1907, in its selected quarters, occupying the fourth floor of the McCandless building. This event marks an era in the business life of Honolulu and is aimed to supply a need both for local and visiting business people. The Club opened house with a membership list of one hundred and sixty-eight.

Changes of business locations have been few this year, the principal ones being that of the Hawaiian Board Rooms from the Progress Block to premises of their own, corner of Alakea and Merchant streets, a gift from Mr. and Mrs. P. C. Jones.

Hopp & Co., furniture dealers, moved to the Lewers & Cooke building, King street, and the Coyne Furniture Co. have taken their vacated stores in the Young building.

Wm. C. Lyons has changed from Hotel street to King, near Fort.

NEW INDUSTRIES.

Several new business enterprises have been entered upon this year with a promising outlook, as follows:

The Waianae Lime Co., which organized early in the year, is erecting a double kiln, at Iwilei, of 200 barrels capacity each twenty-four hours, the plant for which was received in September. The Company owns a tract of lime rock of considerable area at Lualualei, Waianae, which will furnish them raw material for many years, and an easily constructed spur from the O. R. & L. Co.'s line will facilitate the handling of the crude product. Expert tests of the lime rock pronounce it excellent in quality.

Average imports of this product for the past three years show our annual needs to be 64,226 barrels, of the value of \$66,224, which would be a neat sum to keep at home.

Another project to supply at least local needs, is the enlargement of Love's Bakery and the installment of the new biscuit, cracker and fancy cake machinery of a capacity equal to all likely demands, as also entirely revolutionizing old hand methods in facilitating bread making. It is fitted with a modern Ferris-wheel oven, making it an up-to-date concern throughout. The plant will require a working force of twenty-five hands.

The local manufacture of soy, which has sought to supplant the imported article, has met with such success that a corporation has formed with a capital of \$60,000 to enlarge the works to the capacity of 3,000 tubs per month. The importation of soy has run as high as 100,000 tubs a year, so necessary an article is it to the food supply of the Japanese, and the high duty thereon favors the local product materially.

Still another enterprise is the recently incorporated Hawaiian Copra Co., capitalized at \$30,000, to set out and cultivate coconut groves of choice productive quality in a desirable tract of some 200 acres, at Kailua, in the Koolau district of this island.

Two Vineyard Companies have been in progress the past few years, one each on Maui, and in Kona, Hawaii, both of which are already extending their operations by increased capital from their earnings. The Kona concern, beside securing a desirable tract for additional culture, is installing a boiler and machinery for completion of their winery plant.

Mention is to be made of the establishment of a distillery in Kona, Hawaii, under Federal surveillance, for the manufacture of

Okolehao from the wild ti root, of a capacity of 2,250 gallons per month. Its product will be shipped to Honolulu bonded warehouse.

HAWAII'S TRANSPACIFIC YACHT.

Following up the successful Transpacific Yacht Race of 1906, initiative steps were taken by the Hawaii Yacht Club, in June last, toward securing a new craft to represent Hawaii in the coming contest of 1908. A committee was accordingly formed with H. E. Cooper as Chairman, to handle and finance the project. As a result it was decided to build a yacht here, for which \$10,000 has been raised by stock subscription. The craft will be distinctively Hawaiian, with as much island material as possible in her construction, and is to have a distinctive Hawaiian name. The design, with plans and specifications, were entrusted to the noted yacht designer, C. C. Crowningshield, and upon their receipt here work was entered upon at once by Sorenson & Lyle, to insure its completion in time for the coming event, which promises to be one of International interest.

NOTABLE VISITORS.

Among the many distinguished visitors of the year is to be noted that of Secretary Strauss, of the Department of Commerce and Labor, who accompanied Governor Carter on his return, July 31st, "to study within the scope of his Department the needs of this Territory," as he said, and spent some three weeks of intelligent investigation and enquiry upon all such and kindred subjects.

August 2nd, with the governor and party a visit to Pearl Harbor was made in the forenoon, thence by autos to Wahiawa and on to Waialua. Returning Saturday, a public reception was held in the Executive building in honor of Secretary and Mrs. Strauss and Hon. Nicholas and Mrs. Longworth, visiting here at the same time.

Tuesday the Secretary was entertained at luncheon at the Commercial Club, and on Thursday afternoon he met in conference with members of the Chamber of Commerce and the Merchants'

Association, at the Young Hotel, at which the immigration problem was considered; agriculture and commerce dealt with; labor conditions presented; lighthouse requirements and the injustice of the Coastwise laws in their application to these islands illustrated.

PUBLIC IMPROVEMENTS.

The attention given to public improvements have been more of completion and preservation rather than entering upon new projects. Work on wharf extension and harbor dredging has been in winding up of existing contracts preparatory to entering upon a season of activity under both territorial and federal direction. Street work has been well maintained in spite of road damages through excessive rains.

In the attention given Nuuanu Dam, the work on the Makiki reservoir addition to our water works system has come quietly to a successful close. This will afford material relief to Manoa and the southern suburbs.

Bids for a new Court house at Wailuku, to be of hollow concrete blocks, and for which \$25,000 was appropriated, were called lately, and the work assigned. Like steps were taken toward the new high school building for this city, to occupy the Merten's premises, opposite Thomas Square, on Victoria street, but some delay may occur in its start, on legal grounds.

It is likely that work on the extension of Kahauika Post will be undertaken shortly, instructions having been received last June to double its capacity. This Post was occupied for the first time, April 15th, 1907.

Work is progressing on the Makapuu lighthouse and its accompanying buildings, off Waimanalo, as also on the harbor entrance light of this port.

The Kunst lot at Kapiolani Park, secured by the County of Oahu for a beach recreation place for the public, has been provided with bath houses, dressing rooms, dancing pavilion and lounging room, and the bathing place deepened by removal of the coral.

PROSPECTIVE KAHULUI.

Leaseholders of Kahului property met with the owners of the lands there, in June last, and surrendered their leases preparatory to laying out the town on modern lines. The lower levels will be raised, sewerage and the water system improved, and fire protection provided. This work of remodeling the town will progress gradually, and until new lots are laid out old tenants will occupy their premises as tenants at will. Vested interests will not be disturbed until this has been done, and time sufficed for the erection of better buildings in their place.

The construction of its breakwater and harbor dredging is nearing its finish at the private expense plans contemplated, but changed somewhat from those originally designed. Further and more extended work for this developing important shipping port of Maui will await government assistance for its completion.

REAL ESTATE AND BUILDING.

While the transactions in realty for the year may fairly claim activity as to number, the records indicate few transfers of magnitude, and many at figures below assessor's values. A number of foreclosures have been made which failed to clear the obligations thereon. The spirit of the market has not been encouraging for sales of high class properties as evidenced in the withdrawals recently of the Isenberg and Cooper offerings.

A long mooted question, the site for the Federal buildings, has been settled at last by the selection of the Mahuku property, running through from King street to Merchant. Some delay occurs in the transfer, clear title to which may call for condemnation proceedings.

Other business property sales include the Progress block to the Japanese government for its Consulate; the remainder of the old Sailor's Home lot, opposite the Police station, to the Yokohama Specie Bank for the erection of a building for its use, and the Magoon block, corner of Merchant and Alakea streets, to C. M. Cooke, subject to a long existing lease.

Important sites in Manoa, from the old Metcalf tract, have been

secured for the location of the Mid-Pacific Institute, to embrace the Kawaiahao Seminary and the Mills' Institute, work on which are already in progress.

Building has not shown activity of late. Apart from the prosecution of work on the new buildings at Punahou, a few pretentious residences, and the completion of the Kahauiki Post, work has been desultory and light. Permits for the year show a decline in value of \$26,000, the total being \$331,500, including the Harrison and McCandless blocks, finished in this period. The outlook, however, is brighter, for there are a number of important structures planned for in schools and accompanying buildings in this city and on the other islands, besides the bank building mentioned, excavations for which are completed.

The corner stone of the T. H. Davies' Parish house in the St. Andrew's Cathedral grounds, was laid May 9th, 1907, with ceremonies, and work thereon is going forward.

FIRES AND ALARMS.

These misfortunes have been fortunately few for the year, the more important occurrences being attended by circumstances strongly pointing to incendiarism, but insufficient in proof for conviction save in one case.

December 19th, 1906, the fine new residence of J. F. Waldron, at Manoa, just about completed, was entirely destroyed by fire during the early evening hours, from alleged spontaneous combustion. The value of the structure was \$12,000; amount of insurance thereon \$10,000.

Shortly after midnight of June 4th, 1907, the new residence for the president of Oahu College, in course of construction just mauka of the new dormitories, etc., of the college, was burned to the ground. Suspicions of incendiarism prevailed, but investigation failed to elicit convincing proof. Insurance of \$10,000 has been paid thereon.

Early in August a small building at Kakaako of not much value was destroyed by fire. Shortly afterwards, by the prompt response to the firemen to a "still alarm" about 8 a. m. of Sunday,

the 18th, an incendiary blaze in the Kerosene warehouse at Ka-kaako was quenched just in time to avert a serious explosion and conflagration. The suspicions connected with the case were followed up for several weeks, resulting in the arrest, confession and conviction of the guilty party.

Sing Loy's feed warehouse on Nuuanu street, above Merchant, was discovered on fire in the early hours of December 2nd, cause of which is unknown. The place was gutted and adjoining property saved by strenuous effort. Loss claimed at over \$7,000; partly insured.

Fire broke out in the boiler house of the Waimanalo Sugar Co., Koolau, at two a. m. of December 10th. Prompt response of the laborers and courageous energy in battling the flames overcame the danger after an hour's fierce fight; confining it to the house of origin and saving all those adjoining. Damage estimated at \$4,000.

SHIPPING CASUALTIES.

Schooner *Lavinia*, of 40 tons register, from windward ports for Honolulu, was caught in a Kona gale and went ashore off Wai-kiki, December 30, 1906, and went quickly to pieces, the officers and crew all swimming safely to shore.

British bark *Carollton*, en route from Newcastle to this port, with coal, was lost on Midway Island the latter part of December, 1906. Her crew was rescued by the cable ship *Restorer*, hence for that purpose, and taken to Vancouver.

March 4, 1907, the British ship *Loch Garvie*, from Nitrate ports for Honolulu, grounded off Kamalo, Molokai, mistaking it for this port. By aid of the tug, the *Manning*, and a couple of the Inter-Island steamers which hurried to the rescue, she was hauled off on the 7th without material damage and towed to port.

The same month an incendiary attempt was made to fire the British ship *Claverdon*, lying at the dock, Honolulu, but prompt response of the Fire department overcame the danger.

Bark *Tillie Starbuck*, of the Brewer line, with a full cargo of goods from New York for this market, was abandoned at sea off the coast of Chile; the captain and crew making their way by open

boats to Coquimbo, arriving August 23rd. No particulars of the misfortune has been received here.

Bark *Nuuuanu*, of the same line, left New York for Honolulu, August 13th, with a full cargo of staple goods, but springing aleak a short distance out returned to port and after undergoing a week's repairs resumed her voyage.

Schooner *Spokane*, lumber laden, arrived November 17th, in distress, having sprung her mainmast head in a heavy north-east gale en route from Kailua to Hilo, which necessitated bearing away for this port for repairs.

Norwegian steamer *Admiral Borresen*, lumber laden from Seattle, en route for Taku, China, arrived November 19th dismantled and badly damaged in a heavy gale which occurred November 2nd, wherein great seas striking the ship broke loose the deck load of heavy timbers, breaking off both masts, crushing in the deck house, carrying away long sections of bulwarks on the star-board side, and rendering her saloon and forward cabins a mass of ruins.

Steamer *James Makee*, in entering the harbor of Kamalo, Molokai, November 23rd, through disabled steering gear, went on the reef and by force of the wind was driven over to deep water, from which position she finally worked out safely with high tides.

WEATHER CONDITIONS.

Probably few year's records will show a heavier rainfall for the winter season throughout the islands than that of 1906-07. Rains set in December 13th, giving 3.16 inches in this city in 24 hours, as against an average of 0.49 for the past seven years. Copious rains followed on the 21st to 23rd. The latter part of the month much rain was reported from many stations, and on the night of the 30th an electric storm prevailed, doing much damage in various parts. The new year was ushered in with a continuation of rain and thunder.

Sunday, February 3rd, the city was deluged, the record showing 3.28 inches for the 24 hours; street damages estimated at \$12,000. About the same time a big storm prevailed on Maui, damaging roads and cane fields generally.

Unusual rain spells for summer occurred on most of the Islands in August. Windward Hawaii experienced several days of a heavy continuous downpour. In Hilo the Electric Light plant was badly damaged by the swollen stream.

KOA AND OHIA LUMBERING PROSPECTS.

Toward the close of 1906 the American-Hawaiian Mahogany Lumber Co., a California corporation, was reported formed to operate leased lands in the Kau and South Kona districts to get out and ship koa logs to the Coast. One hundred men were reported employed, with W. W. Wilson as local manager.

The koa lumber mill mentioned in last issue as to be erected in the vicinity of the Volcano House, was in process of construction in March, estimated to cost some \$50,000. Since that time a new branch of its industry has opened up in the demand from the mainland for ohia railroad ties, a full cargo of which were shipped from Hilo in June and contracts have been signed with the Atchison, Topeka & Santa Fe Railroad to deliver 500,000 ties yearly for the next five years. To facilitate its operations the company is extending its railroad eleven miles, and will connect at Glenwood with the Hilo Railroad Co.'s line.

In October the company voted to double its capital stock, \$200,000, so as to operate in several sections of the forest at once in getting out ties on their contract.

RUBBER GROWING.

Interest in the growth of rubber trees throughout the islands is taking a firm hold. In the early part of the year the Hawaiian Rubber Growers' Association formed on Maui, with headquarters at Kahului, for the promotion of its interests. In October a convention was held at Nahiku, at which many of the members attended by chartered steamer. Parties interested in the development of this new industry gathered from Honolulu, Lahaina, Kahului and other points for attendance on this, the first rubber convention on American soil, and the few days devoted to prac-

tical demonstration of its commercial possibilities was assuredly a success.

Four Maui companies are reported to have cleared 1,000 acres, of which 800 are planted, besides which the Hana and Kipahulu sugar plantations are utilizing their gulches for the growth of rubber. One company at Nahiku is reported to have several thousand trees which will be ready to tap next spring. The Pacific Development Co., for rubber growing in Puna, Hawaii, organized early in 1907, with a capital of \$30,000. Fifty acres were planted in August, with the expectation of doubling it by the end of the year.

Other localities are being looked into for desirability as tracts for rubber culture and a number of sugar plantations are urged to plant their waste places to rubber, like the two above mentioned, both from a productive and rainfall influence point of view.

OCEANIC-AUSTRALIAN LINE.

The Oceanic S. S. Co. discontinued its service to the Colonies with the return of the Sonoma in May last, owing to the failure of Congress to grant a subsidy, and the withdrawal of the New Zealand mail contract. It is hoped this is but a temporary suspension, and that Congress will grant the needed aid to maintain a regular mail and passenger service between San Francisco and the Colonies. New Zealand, Samoa and Honolulu have greatly missed the conveniences of this line, and the terminal ports more.

MINISTERIAL CHANGES.

It is a coincidence worthy of note that three of the Protestant foreign churches of this city should receive new pastors within a few weeks of each other in the same year.

Owing to ill health Rev. J. Walter Sylvester, D. D., resigned the pastorate of Central Union Church, and has been succeeded by Dr. Doremus Scudder, for several years past the efficient Secretary of the Hawaiian Board.

Rev. C. D. Edwards resigned from the pastorate of the Christian Church to return to the mainland, and has been succeeded by Rev. A. C. McKeever.

Rev. David Crane relieves Rev. John Wadman from the pastorate of the Methodist Church, to enable him to take general supervision of the work of that denomination among the different nationalities throughout the islands, principally Japanese and Koreans.

VOLCANIC ERUPTIONS.

Among the events of the year of unusual interest was an eruption from the slope of Mauna Loa, some distance below the summit on the Kau side, which occurred about midnight of January 9th, a descriptive account of which appears on pages 131-35 of this issue. The eruption was preceded by earthquakes of unusual character which continued at intervals till the 11th, seven being felt at Kau on the closing date. A noticeable feature of the eruption was the density of sulphurous smoke attending it, the withering effect of which on nearly all vegetation was severe, even in sections remote from the course of the flows.

Kilauea became active January 25th and continued so for some weeks, slowly filling up the crater, then gradually subsiding by fitful spells.

NECROLOGY FOR 1907.

Among those of the year who have "ceased from their labors" and gone to their reward are many of well known early, or prominent, residents, several of whom died abroad, viz.: John Ena, in California; Junius Kaae, Henry E. Highton, Captain W. B. Godfrey and Mrs. M. A. Gray, in San Francisco; Dr. C. B. Greenfield at Honokaa, Andrew Brown, Mrs. Mary Castle, H. J. Nolte, A. B. Loebenstein at Hilo, Mrs. S. Savidge, Geo. D. Gear, Geo. Cockett at Paia, J. M. Horner at Kukaiau, Rev. J. Kauhane, David A-i, John Chas. Peterson ("Diamond Head Charlie"), Mrs. Mary E. Parker ("Mother Parker"), aged 102 years, Joao Moniz at Kohala, aged 104, Mrs. T. H. Davies in England; Alex. Garvie, and Chas. Creighton.

MISCELLANEOUS.

A movement is on foot for the establishment of a Children's Hospital in Honolulu, toward which a prominent Kauai resident agrees to give \$50,000 for its construction if a like sum is secured

for endowment. Two contributions of \$10,000 each come from Germany.

The Floral Auto and Pa-u Riders parade is becoming a feature of Washington's birthday celebration in this city, that for 1907 being more elaborate and spectacular than heretofore. Beside a larger company of pa-u riders further interest obtained by its closing exhibition of competitive horsemanship at the baseball grounds.

Improvement in sugar shipment facilities have been made this year at the railroad wharves, whereby sugar is now delivered to four hatches of large steamers at the rate of twenty-two sacks a minute.

The Country Club had its opening April 27, 1907, on which occasion a general reception, or open house, was held for the society of Honolulu, which was very generally attended in recognition of the event.

THE first display of the Chinese flag in these islands was in July, 1854, by the arrival of the Chinese ship *Hamilton*, from San Francisco, en route to the Caroline Islands. She was an American vessel owned in China, manned by Chinese and seeking a cargo of hogs for the California market.

A NEAT TRIBUTE.—“I have seen much of the world. I am familiar with those places which are the favored lands for tourists and my eight days' stay here has convinced me that there is no land on the face of the earth, considering climate and population, and considering beauty and attractiveness of scenery and charms of hospitality, which offers so much to the tourist either in health or pleasure as this Eden of the Pacific.”—*From Address of Secretary Straus.*

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands.

Those marked with an asterisk (*) are planters only; those marked with a dagger (†) are mills only; all others are plantations complete, owning their own mill. (Corrected to Dec. 1, 1907.)

NAME.	LOCATION.	MANAGER.	AGENTS
Apokaa Sugar Co.*.	Ewa, Oahu.....	G. F. Renton.....	Castle & Cooke
Ewa Plantation.....	Ewa, Oahu.....	G. F. Renton.....	Castle & Cooke
Gay & Robinson*....	Makaweli, Kauai.	Gay & Robinson..	Waterh'se Tr. Co.
Grove Farm*.....	Nawiliwili, Kauai.	Ed. Broadbent....	Hackfeld & Co.
Hakalau Plant. Co...	Hilo, Hawaii.....	J. M. Ross.....	Irwin & Co.
Halawa Sugar Co....	Kohala, Hawaii..	T. S. Kay.....	Waterh'se Tr. Co.
Hamakua Mill Co...	Hamakua, Hawaii.	A. Lidgate.....	Davies & Co.
Hawi Mill & Plant...	Kohala, Hawaii..	J. Hind.....	Hind, Rolph & Co.
Haw. Agr. Co.....	Kau, Hawaii.....	W. G. Ogg.....	Brewer & Co.
Haw. Com. & S. Co...	Puunene, Maui...	F. F. Baldwin....	Alex. & Baldwin
Hawaiian Sugar Co...	Makaweli, Kauai.	B. D. Baldwin....	Alex. & Baldwin
Hawaii Mill Co.....	Hilo, Hawaii....	W. H. Campbell..	Hackfeld & Co.
Hilo Sugar Co.....	Hilo, Hawaii....	John A. Scott....	Irwin & Co.
Honolulu Plant. Co.	Halawa, Oahu....	G. Ross.....	Irwin & Co.
Honokaa Sugar Co...	Hamakua, Hawaii.	K. S. Gjerdum...	Schaefer & Co.
Honomu Sugar Co...	Hilo, Hawaii....	Wm. Pullar.....	Brewer & Co.
Hutchinson S. P. Co.	Kau, Hawaii.....	C. Wolters.....	Irwin & Co.
Kaeleku Sugar Co...	Hana, Maui.....	J. Chalmers.....	Grinbaum & Co.
Kahuku Plantation...	Kahuku, Oahu....	Andrew Adams...	Alex. & Baldwin
Kekaha Sugar Co....	Kekaha, Kauai...	H. P. Faye.....	Hackfeld & Co.
Kilauea S. Plant. Co.	Kilauea, Kauai...	F. Scott.....	Irwin & Co.
Kipahulu Sugar Co...	Kipahulu, Maui...	H. Haneberg....	Hackfeld & Co.
Kihei Plantation*....	Kihei, Maui.....	A. J. McLeod....	Alex. & Baldwin
Kohala Plantation...	Kohala, Hawaii..	Geo. C. Watt....	Castle & Cooke
Koloa Sugar Co.....	Koloa, Kauai....	W. Weinzheimer..	Hackfeld & Co.
Kona Developmt Co...	Kona, Hawaii....	W. M. McWayne...	Hawn. D'l'pmt Co.
Kukaiau Mill Co.†...	Hamakua, Hawaii.	E. Madden.....	Davies & Co.
Kukaiau Plant. Co...	Hamakua, Hawaii.	Albert Horner...	Hackfeld & Co.
Laie Plantation.....	Laie, Oahu.....	S. E. Wooley....	Alex. & Baldwin
Laupahoehoe S. Co...	Laupahoehoe, Ha.	C. McLennan....	Davies & Co.
Lihue & Hanam'lu Mill.	Lihue, Kauai....	F. Weber.....	Hackfeld & Co.
Mahee Sugar Co.....	Kealia, Kauai...	G. H. Fairchild...	.....
Maui Agrl. Co.....	Haiku, etc., Maui.	H. A. Baldwin....	Alex. & Baldwin
McBryde Sugar Co...	Wahiawa, Kauai.	W. Stodart.....	Davies & Co.
Niulii Mill & Plant...	Kohala, Hawaii..	Robert Hall.....	Davies & Co.
Oahu Sugar Co.....	Waipahu, Oahu...	E. K. Bull.....	Hackfeld & Co.
Olaa Sugar Co.....	Olaa, Hawaii....	Ino. Watt.....	Bishop & Co.
Olowalu Sugar Co...	Olowalu, Maui...	Geo. Gibb.....	Irwin & Co.
Onomea Sugar Co...	Hilo, Hawaii....	John T. Moir....	Brewer & Co.
Ookala Sugar Co...	Ookala, Hawaii..	W. G. Walker....	Brewer & Co.
Paauihau S. Plant. Co.	Hamakua, Hawaii.	Jas. Gibb.....	Irwin & Co.
Pacific Mill (†)....	Hamakua, Hawaii.	Aug. Ahrens.....	Schaefer & Co.
Pepeekeo Sugar Co...	Hilo, Hawaii....	Jas. Webster.....	Brewer & Co.

List of Sugar Plantations, Mills and Cane Growers Throughout the Islands—Continued.

NAME.	LOCATION.	MANAGER	AGENTS.
Pioneer Mill Co., Ltd.	Lahaina, Maui.	L. Barkhausen.	Hackfeld & Co.
Puakea Plant. Co.*	Kohala, Hawaii.	H. R. Bryant.	Davies & Co.
Puako Plantation.	S. Kohala, Haw.	J. C. Searle.	Hind, Rolph & Co.
Union Mill Co.	Kohala, Hawaii.	H. H. Renton.	Davies & Co.
Waiakea Mill Co.	Hilo, Hawaii.	C. C. Kennedy.	Davies & Co.
Waialua Agri. Co.	Waialua, Oahu.	W. W. Goodale.	Castle & Cooke
Waianae Plantation.	Waianae, Oahu.	Fred Meyer.	J. M. Dowsett
Wailuku Sugar Co.	Wailuku, Maui.	C. B. Wells.	Brewer & Co.
Waimanalo S. Co.	Waimanalo, Oahu.	Geo. Chalmers.	Irwin & Co.
Waimea Sug. M. Co.	Waimea, Kauai.	Jno. Fassoth.	Castle & Cooke

Pacific Scientific Institution.

Application has been filed by a number of our foremost citizens for a fifty year charter under the above title, the objects of which as set forth, are: "To encourage in the broadest sense and most liberal manner investigation, research and discovery in the Pacific Ocean, and to make application of knowledge thereof to the improvement of mankind," for which purpose the corporation seeks authority to hold sufficient property to carry out its objects.

The incorporating petitioners are: F. C. Atherton, W. A. Bryan, J. B. Castle, C. H. Cooke, H. E. Cooper, T. C. Davies, W. F. Frear, A. F. Griffiths, P. L. Horne, F. J. Lowrey, W. Pfotenbauer, M. P. Robinson, W. O. Smith, L. A. Thurston and R. H. Trent.

The purpose of the Institution in detail is given as follows:

(a) To conduct, endow and assist investigation in any department of science, and to this end to coöperate with governments, universities, colleges, technical classes, corporations, learned societies, organizations and individuals.

(b) To appoint committees and experts to direct special lines of research.

(c) To publish and distribute documents.

(d) To conduct lectures, hold meetings and acquire and maintain a library.

(e) To purchase real estate, etc., or property real, personal or mixed—not to exceed in value \$10,000,000, and to lease or rent such property, and to construct such buildings, vessels and equipments as may be deemed necessary or convenient to carry on the work of the corporation.

(f) In general to promote the objects of the corporation, and to prosecute ethnographical, biological and general scientific surveys of the Pacific Ocean, and to amplify, apply and publish the results of such surveys, during the first fifteen years of the corporate life of the Institution, or until said work shall have been substantially accomplished.

HAWAIIAN SUGAR CROPS IN TONS, 1902-1907.

From Table Prepared for Hawaiian Planters' Association, by
W. O. Smith, Secretary.

(Earlier years from 1892 can be found in the Annual for 1901)

ISLANDS.	1902	1903	1904	1905	1906	1907
Production of Hawaii.....	121,295	170,665	122,865	126,405	137,250	143,891
“ “ Maui.....	56,726	83,776	77,985	100,434	102,960	104,772
“ “ Oahu.....	107,870	121,066	102,919	123,095	113,750	119,273
“ “ Kauai.....	69,720	61,484	64,606	76,314	74,753	72,081
Grand Total	355,611	437,991	367,475	426,248	429,213	440,017
HAWAII PLANTATIONS.						
Waiakea Mill Co.....	8,700	9,954	6,151	7,661	10,766	8,186
Hawaii Mill Co.....	985	1,503	1,728	1,438	1,825	1,800
Hilo Sugar Co.	9,255	13,108	7,701	9,971	11,751	11,649
Onomea Sugar Co.....	11,880	13,472	10,940	11,049	13,930	12,432
Pepeekeo Sugar Co.....	6,627	6,000	4,907	6,167	6,477	6,677
Honomu Sugar Co.....	6,235	6,384	5,489	5,909	5,852	5,502
Hakalau Plantation Co.....	11,700	11,293	8,396	10,862	12,869	11,914
Laupahoehoe Sugar Co.....	7,909	4,856	4,336	5,866	7,864	7,848
Ookala Sugar Plantation Co.	1,157	3,942	2,214	3,712	3,223	5,352
Kukaiau Plantation Co.....	1,118	1,746	1,275	1,415	2,154	2,103
Kukaiau Mill Co.....	1,118	1,646	1,274	1,416	1,435	1,402
Hamakua Mill Co.....	2,105	6,950	4,691	5,925	6,358	6,835
Paaupau Sugar Plantation Co.	1,322	9,136	7,533	8,006	8,795	7,857
Honokaa Sugar Co.....	3,089	8,587	7,402	6,895	7,940	6,898
Pacific Sugar Mill.....	2,517	6,059	3,388	4,342	4,331	2,931
Niulii Mill and Plantation....	1,146	1,903	1,189	1,645	2,226	2,501
Halawa Plantation.....	575	1,860	1,016	925	1,036	1,615
Kohala Sugar Co.....	1,096	5,409	2,663	3,350	3,300	2,400
Union Mill Co.....	463	3,380	1,776	2,166	2,570	2,828
Hawi Mill.....	1,373	5,563	3,631	3,687	4,389	5,296
Kona Sugar Co.....	1,391	1,850	897	.....	.....	.....
Hutchinson Sugar Plntn. Co.	8,021	7,527	5,741	7,107	6,940	7,063
Hawaiian Agricul. Co.....	11,998	18,888	10,954	1,620	826	11,630
Puakea Plantation.....	307	366	201	262	398	400
Olaa Sugar Co.....	16,748	15,030	13,788	11,351	9,405	9,431
Puna Sugar Co.....	2,460	3,603	3,146	3,147	867	1,172
Puako Plantation.....	.....	550	438	500	223	169
	121,295	170,655	122,865	126,405	137,750	143,891

HAWAIIAN SUGAR CROPS, 1902-1907 Continued.

MAUI PLANTATIONS.	1902	1903	1904	1905	1906	1907
Kipahulu Sugar Co.....	1,427	1,622	1,415	1,324	1,464	1,809
Hamoia Plantation Co.....	1,748	.....	.....	.....	.....	.....
Hana Plantation Co.....	2,700	4,922	2,662	2,720†	850	2,702
Haiku Sugar Co.....	4,234	6,397	*	.....	.....	.....
Paia Plantation.....	4,146	7,856	13,521	17,820	19,861	20,220
Haw'n Coml & Sug. Co.	19,477	33,230	29,829	39,411	43,652	44,143
Wailuku Sugar Co.....	5,934	7,490	6,451	7,516	7,828	7,425
Olowalu Co.....	1,055	843	1,125	1,652	1,635	1,448
Pioneer Mill Co., Ltd....	9,960	16,530	17,036	25,581	22,509	23,099
Kihei Plantation Co., Ltd.	5,562	5,629	5,461	4,410	5,161	3,926
Maui Sugar Co.....	483	257	485	.....	.....	.....
	56,726	84,776	77,985	100,434	102,960	104,772
OAHU PLANTATIONS.						
Waimanalo Sugar Co.....	2,985	3,218	2,963	3,428	4,148	3,186
Heeia Agricul. Co., Ltd..	631	.....	.....	.....	.....	.....
Iaie Plantation.....	430	724	597	857	1,112	873
Kahuku Plantation Co....	5,623	8,212	6,360	7,431	6,689	6,500
Waialua Agricultural Co.	17,001	19,800	18,682	19,722	20,788	22,614
Waianae Co.....	5,000	5,348	5,500	5,128	5,490	6,214
Ewa Plantation Co.....	38,775	33,162	29,797	32,380	29,302	31,790
Apokaa Sugar Co.....	901	610	874	454	865	461
Oahu Sugar Co.....	26,724	29,256	20,870	33,589	26,710	28,457
Honolulu Plantation Co.	9,800	20,736	16,376	20,106	18,646	19,178
	107,870	121,066	102,019	123,095	113,750	119,273
KAUAI PLANTATIONS.						
Kilauea Sugar Pltn Co.	3,672	3,012	1,850	2,290	2,700	3,844
Makee Sugar Co.....	11,232	8,215	7,840	8,335	7,986	6,696
Lihue Plantation Co.....	13,674	11,375	14,611	14,185	16,005	14,127
Grove Farm Plantation...	2,915	1,896	1,679	1,679	1,933	1,807
Koloa Sugar Co.....	5,001	4,825	6,172	6,172	5,570	5,553
McBryde Sugar Co.....	9,113	11,922	10,535	13,136	11,024	7,890
Hawaiian Sugar Co.....	11,480	10,324	11,493	19,062	18,616	20,140
Gay & Robinson.....	2,265	1,645	1,665	2,151	2,099	2,590
Waimea Sugar Mill Co....	565	540	627	1,305	1,550	1,425
Kekaha Sugar Co.....	8,978	7,064	7,447	7,318	6,626	7,329
Estate of V. Knudsen....	735	666	687	680	644	680
Total.....	69,720	61,484	64,606	76,314	74,753	72,081

*The Haiku Sugar Co., and Paia Plantation now comprise the Maui Agricultural Co.

†The Hana Plantation changes in name to the Kaeleku Plantation Co.

POSTAL SERVICE, TERRITORY OF HAWAII.

Corrected to December 1, 1907.

Frank J. Hare, Inspector in Charge.
 Geo. W. Carr, Asst. Sup't. Railway Mail Service.
 Jos. G. Pratt, Postmaster.
 Jno. T. Stayton, Asst. Postmaster; Wm. McCoy, Chief Registry Clerk;
 F. E. Colby, Chief Money Order Clerk; W. C. Kenake, Chief Mailing
 Clerk; F. T. Sullivan, Supt. of Delivery.

POSTMASTERS ON HAWAII.

Hilo.....	Geo. Desha	Keauhou....	Mrs. H. L. Kawewehi
Pepeekeo	E. N. Deyo	Holualoa.....	L. S. Aungst
Honomu	Wm. Hay	Kailua.....	John P. Curts
Kawaihae	J. Laau	Kealahakua.....	Robt. V. Woods
Mahukona	R. R. Elgin	Napoopoo	R. Wassman
Kukuihaele	W. Horner	Hoopulua.....	D. L. Keljikuli
Paauihau	Jas. Gibb	Kookena.....	L. P. Lincoln
Kamuela	Moses Koki	Pahala.....	T. C. Wills
Kohala.....	Miss M. R. Woods	Honuapo.....	C. P. Akamu
Paauiho.....	Anthony Lidgate	Waiohinu.....	Anna H. McCarthy
Laupahoehoe.....	E. W. Barnard	Naalehu	Carl Wolters
Ookala.....	W. G. Walker	Hakalau	Wm. Ross
Honokaa.....	A. B. Lindsay	Olaa	John Watt
Mountain View.....	E. L. Rackliff	Papaaloa	Alfred C. Palfrey
Kalapana	Dan'l Kaloi	Lalamilo.....	J. C. Searle
Volcano House.....	D. Lycurgus		

POSTMASTERS ON MAUI.

Lahaina	Arthur Waal	Kipahula	Mrs. J. Glenn
Wailuku	L. M. Vetleson	Kahului.....	J. N. S. Williams
Makawao.....	A. F. Tavares	Paia	D. C. Lindsay
Hana	N. Omsted	Hamakuapoko.....	W. F. Mossman
Huelo.....	Wm. F. Pogue	Haiku	Jas. Lindsay
Puunene.....	H. P. Baldwin	Peahi.....	Geo. Groves
Kaupo	Jas. Keawe	Kearnae.....	J. W. K. Halemano
Makena.....	D. Kapohakukimohewa	Waiakoa	Joaquin Vincent
Kihei.....	W. A. Sparks	Keokea.....	L. C. Akana
Honokohau.....	R. C. Searle		

POSTMASTERS ON OAHU.

Aiea (acting).....	Geo. Ross	Punaluu	D. Kaapa
Pearl City.....	J. P. Keppler	Waimanalo	A. Irvine
Ewa.....	Geo. F. Renton	Kahuku	Andrew Adams
Waipahu.....	J. H. Travis	Heeia	Frank Pahia
Waianae	F. Meyer	Wahiawa.....	H. R. Grant
Waialua.....	W. W. Goodale	Haleiwa.....	St. Clair Bidgood
Laie.....	S. W. Woolley	Waikane	Sam'l Waiwi
Kahana	A. Opunui		

POSTMASTERS ON KAUAI.

Lihue	Frank Crawford	Kealia.....	Jno. W. Neal
Koloa	A. Buchholtz	Kilauea	F. Scott
Hanapepe.....	H. H. Brodie	Kekaha.....	A. F. Knudsen
Makaweli.....	B. D. Baldwin	Waimea.....	C. B. Hofgaard
Eleele.....	Mrs. J. I. Silva	Hanalei.....	N. F. Sanborn

POSTMASTERS ON MOLOKAI AND LANAI.

Pukoo	D. K. Ilae	Keomoku	Chas. Gay
Kalae	Ellen Sobey	Kalaupapa.....	J. S. Wilmington
Pelekunu	J. Kapahu	Kaunakakai	F. Minamina
Halawa	M. H. Kane		

POST OFFICE INFORMATION.

Office hours of the General Delivery are from 6 a. m. to 12 o'clock midnight. On legal holidays the time is from 8 a. m. to 9 a. m. On Sundays, from 9 to 10 a. m.

Hours of the Stamp and Registry Department are from 8 a. m. to 6 p. m., and of the Money Order Department from 8.30 a. m. to 5 p. m.

The General Delivery is open (except Sundays and holidays) from 6 a. m. till midnight, for the delivery of mail, registering of letters and issuance of Money Orders.

Inter-Island mails close forty-five minutes before the sailing of steamers. For foreign ports the ordinary mails close one hour prior to steamers' departure.

RATES OF POSTAGE, DOMESTIC.

First class matter (letters, etc.).....	2 cents per oz. or fraction
Second class (newspapers and periodicals).....	1 cent per 4 oz. or fraction
Third class (books, circulars).....	1 cent per 2 oz. or fraction
Fourth class (merchandise—limit of weight 4 lbs.).....	
.....	1 cent per oz. or fraction
Registration Fee (additional postage).....	8 cents
Immediate Delivery Stamp (additional to postage).....	10 cents
Postal Cards	1 cent each

FOREIGN POSTAGE.

The rate to all foreign countries except Canada and Mexico are: Letters per ounce or fractional part, 5 cents for first ounce, and 3 cents for each additional ounce. Printed matter, 1 cent for each 2 ounces or part. Postal Cards, 2 cents each.

Parcels of Merchandise, 12 cents per pound. Limit of weight, 4 pounds, 6 ounces.

REFERENCE LIST OF PRINCIPAL ARTICLES

That have appeared in the Hawaiian Annuals, 1875-1907.

[In consequence of frequent inquiry for various articles that have appeared in the Annuals, their time of issue, etc., the principal articles are here classified under their respective subjects for handy reference.]

AGRICULTURAL.

- History of Sugar Industry of Hawaiian Islands, by T. G. T., 1875, p. 34.
History of Coffee Culture in Hawaiian Islands, by T. G. T., 1876, p. 46;
1895, p. 63.
History of Rice Culture in Hawaiian Islands, by T. G. T., 1877, p. 45.
The Hawaiian Islands as a Sugar Producing Country, by T. G. T., 1879,
p. 27.
Varieties of Sweet Potatoes, by T. G. T., 1879, p. 30.
Varieties of Taro, by T. G. T., 1880, p. 28; Taro, by T. G. T., 1887, p. 63.
Cultivated Sugar Canes of the Hawaiian Islands, by A. C. Smith, 1882,
p. 61.
Something About Bananas, by Walter Hill, 1883, p. 62.
Fruits and Their Seasons in the Hawaiian Islands, List of, by T. G. T.,
1886, p. 49.
Introduction of Queensland Canes, by C. N. Spencer, 1889, p. 91.
Hawaiian Varieties of Bananas, by T. G. T., 1890, p. 79.
Lapsed and Possible Industries in Hawaii-nei, by T. G. T., 1893, p. 105.
Bureau of Agriculture and Forestry, by T. G. T., 1894, p. 92.
Diversified Industries, by Jos. Marsden, 1894, p. 94.
Coffee Outlook in Hawaii, by T. G. T., 1895, p. 65; in Hamakua, 1899,
p. 131.
Cotton, a Possible Hawaiian Industry, by L. D. Timmons, 1898, p. 57.
Sugar as an Industry for the Hawaiian Islands, by J. B. Atherton, 1898,
p. 106.
Coffee the Coming Industry, by L. D. Timmons, 1898, p. 109.
Agricultural Possibilities, by W. N. Armstrong, 1898, p. 114.
Kona, Hawaii—Its Possibilities, by T. G. T., 1899, p. 127.
The Hawaiian Islands, an Official Report of U. S. Department of Agriculture, by Dr. W. Maxwell, 1900, p. 61.
Farming in Hawaii, by W. B. Thomas, 1901, p. 124.
Organizations for the Promotion of Agriculture in the Hawaiian Islands,
by T. F. Sedgwick, 1902, p. 133.
The Hawaii Experiment Station, by Jared G. Smith, 1902, p. 136.
The Agricultural Development of Hawaii, from Census Report, 1903, p. 45.
Ancient Hawaiian Farming, by Rev. W. D. Westervelt, 1903, p. 62.
Diversified Industries Again, by T. G. T., 1904, p. 62.
Papaya Culture in Hawaii, by H. M. Wells, 1906, p. 186.
The Nahiku Rubber Company, by W. W. Hall, 1906, p. 155.

COMMERCIAL.

- Honolulu Packet Lines with New and Old World, by T. G. T., 1886, p. 45.
Private Signals Honolulu's Commercial Marine, by T. G. T., 1891, p. 98.

- Fifty Years of Hawaiian Commercial Development, by T. G. T., 1894, p. 58.
 Hawaiian Commercial Development, by T. G. T., 1896, p. 87.
 Hawaii's Eastern Sugar Fleet, by T. G. T., 1897, p. 84.
 California's Participation in the Commercial Development of Hawaii, by T. G. T., 1898, p. 51.
 Hawaii's Commercial Relations, by J. T. Stacker, 1898, p. 128.
 The Financial Outlook, by A. T. Atkinson, 1898, p. 149.
 Hawaii's Early Divergent Trade, by T. G. T., 1899, p. 146.
 The Internal Commerce of Hawaii, by T. G. T., 1904, n. 51.
 The Sandalwood Trade of Early Hawaii, by T. G. T., 1905, p. 43; 1906, p. 105.
 Lessons from Our Customs Tables, by T. G. T., 1906, p. 43.
 Commerce of Hawaii, by E. R. Stackable, 1906, p. 62.
 Customs Table Review, 1906, by T. G. T., 1907, p. 94.

EDUCATIONAL.

- The Transit of Venus of 1874, by C. J. Lyons, 1875, p. 27.
 Board of Education—Its Duties, etc., by T. G. T., 1878, p. 38.
 Longitude of Honolulu, by C. J. Lyons, 1879, p. 64.
 Hawaiian Ideas of Astronomy, from Dibble's History, 1882, p. 49.
 Some Hawaiian Proverbs, by H. L. Sheldon, with notes by Rev. C. M. Hyde, 1883, p. 52.
 Helps to the Study of Hawaiian Botany, by Rev. C. M. Hyde, 1886, p. 39.
 The Hawaiian Islands, a Geographical Sketch, by T. G. T., 1889, p. 49.
 The Kamehameha Schools, by Rev. C. M. Hyde, 1890, p. 62.
 Instructions in Ancient Hawaiian Astronomy, by Prof. Alexander, 1891, p. 142.
 Educational Work of American Mission for the Hawaiian People, by Rev. C. M. Hyde, 1892, p. 117.
 Early Industrial Teaching of Hawaiians, by Prof. Alexander, 1895, p. 91.
 Educational System of Hawaii, by A. T. Atkinson, 1896, p. 126.
 A Mid-Pacific College, by M. L. Todd, 1897, p. 50.
 Education in Hawaii, by Prof. Alexander, 1898, p. 76.
 Notes on the Census of 1896, by A. T. Atkinson, 1898, p. 81.
 Physical Characteristics, by F. S. Dodge, 1898, p. 100.
 Hawaii as an Artists' Field, by P. H. Dodge, 1898, p. 116.
 Evolution of Land Titles in Hawaii, by P. H. Weaver, 1899, p. 139.
 Educational Progress and Tendencies, by H. S. Townsend, 1899, p. 160.
 A Suggestive Criticism on Hawaiian Translation, by E. C. Bond, 1900, p. 148.
 An Island Art Center—Oahu College, by Ed. Towse, 1900, p. 123.
 Outline of the Coming Census, by A. T. Atkinson, 1900, p. 150.
 Geology of Oahu, by Rev. S. E. Bishop, 1901, p. 59.
 Lahainaluna's New Departure, by A. T. Atkinson, 1905, p. 165.

HISTORICAL.

- History of Hawaiian Post Office, by Em. Fenard, 1876, p. 29.
 Commemorative of Centennial of Discovery, by W. M. Gibson, 1879, p. 24.
 Commemorative Monument to Kamehameha I, by T. G. T., 1880, p. 60.
 History of Honolulu Fire Department, by T. G. T., 1880, p. 65.
 Bits of Unwritten History, by H. L. Sheldon, 1882, p. 28.
 Constitution of Hawaiian Kingdom (of July, 1887), 1888, p. 33.
 History of Umi, Translation, by Prof. Alexander, 1888, p. 78.

- Some Noted Battles of Hawaiian History, by T. G. T., 1889, p. 55.
 Hawaiian Postal Savings Bank, by H. F. Poor, 1889, p. 67.
 Brief History of the Steam Coasting Service of Hawaiian Islands, by T. G. T., 1889, p. 70.
 Early Visitors to the Hawaiian Islands, by Prof. Alexander, 1890, p. 37.
 Brief History of Land Titles in Hawaiian Kingdom, by Prof. Alexander, 1891, p. 105.
 History of Provisional Cession of the Hawaiian Islands and Their Restoration, by T. G. T., 1893, p. 45.
 Constitutional History of the Hawaiian Kingdom, by Prof. Alexander, 1894, p. 46.
 The Present Hawaiian Situation, by T. G. T., 1894, p. 143.
 Hawaii, a Republic, by T. G. T., 1895, p. 43.
 The New Hawaiian Constitution, by Dr. Albert Shaw, from "Review of Reviews," 1895, p. 48.
 The Hawaiian Flag Unchanged, by T. G. T., 1895, p. 55.
 Brief Record of the Rebellion, by T. G. T., 1896, p. 56.
 Early History of the House of C. Brewer & Co., by Jas. F. Hunnewell, 1896, p. 68.
 Hawaii's New Seal and Coat-of-Arms, by T. G. T., 1897, p. 86.
 An Historic Residence (the Cooke Homestead), by T. G. T., 1897, p. 112.
 Brief History of Differences Between Hawaii and Japan, by S. E. Bishop, 1898, p. 70.
 The Constitution, by S. B. Dole, 1898, p. 91.
 The Pictured Ledge of Kauai, by J. K. Farley, 1898, p. 119.
 Annexation of Hawaii to the United States, by T. G. T., 1899, p. 72.
 The Passing of Hawaii's Aliis, by T. G. T., 1900, p. 86.
 Yachting in Hawaiian Waters, by T. G. T., 1900, p. 109.
 Interesting Hawaiian Discovery; Ancient Idol Unearthed, by T. G. T., 1900, p. 126.
 Admission Day of Hawaii, by T. G. T., 1901, p. 51.
 Honolulu's Battle with Bubonic Plague, by T. G. T., 1901, p. 97.
 History of the House of H. Hackfeld & Co., by T. G. T., 1902, p. 43.
 Bureau of Conveyances, by T. G. T., 1903, p. 123.
 Rock Carvings of Hawaii, by A. F. Judd, 1904, p. 179.
 The Episcopal Church of Hawaii, by Canon Mackintosh, 1904, p. 216.
 The Board of Fire Underwriters, Territory of Hawaii, by A. R. Gurrey, 1906, p. 55.
 The Picture Rocks of Naalehu, by Rev. W. D. Westervelt, 1906, p. 164.
 Heiaus and Heiau Sites Throughout the Hawaiian Islands, by T. G. T., 1907, p. 36.

RESEARCH.

- History and Description of Hawaiian Postage Stamps, by T. G. T., 1878, p. 41.
 The Hawaiian Flag, by T. G. T., 1880, p. 24.
 Marine Casualties for the Hawaiian Islands, by T. G. T., 1882, p. 31; 1883, p. 40; 1884, p. 34.
 Hawaiian Names and Relationship, by Rev. C. M. Hyde, 1884, p. 42; and reply by Abr. Fornander, 1885, p. 46.
 The Hawaiian Flag and Coat-of-Arms, by T. G. T., 1886, p. 37.
 Some Hawaiian Conundrums, by Rev. C. M. Hyde, 1886, p. 68.
 Hawaiian Poetical Names for Places, by Rev. C. M. Hyde, 1887, p. 79.
 Hawaiian Words for Sounds, by Rev. C. M. Hyde, 1888, p. 55.
 Early Constitution of Hawaiian Islands, by A. F. Judd, 1889, p. 63.

- Taxation in Hawaii, by W. R. Castle, 1892, p. 63.
 Ancient Hawaiian Water Rights, by Mrs. E. M. Nakuina, 1894, p. 79.
 Curiosities of the Registry Office, by T. G. T., 1895, p. 56.
 Bird Hunters of Ancient Hawaii, by Dr. N. B. Emerson, 1895, p. 101.
 Hawaiian Kapa Making, by Prof. W. T. Brigham, 1896, p. 83.
 Hawaiian Surf Riding, by T. G. T., 1896, p. 106.
 Obsolete Street Names, by T. G. T., 1897, p. 88.
 Hawaiian Epidemics, by T. G. T., 1897, p. 95.
 The Battle of Nuuanu, by T. G. T., 1899, p. 107.
 Hawaiian Personal Names, by T. G. T., 1899, p. 113.
 Fornander's Account of Hawaiian Legends Resembling Old Testament History, by Rev. C. M. Hyde, 1900, p. 138.
 Kahoolawe an Early Place of Banishment, by T. G. T., 1903, p. 117.
 Hawaiian Burial Caves, by Rev. W. D. Westervelt, 1904, p. 145.
 Tales from the Temples, by T. G. T., 1907, p. 49.
 Land Customs of Early Settlers in Hawaii, by T. G. T., 1907, p. 69.

REMINISCENT.

- Historical Sketch of the Press of Honolulu, by H. L. Sheldon, 1876, p. 40.
 Reminiscences of the Press, by John F. Thrum, 1877, p. 24.
 Anecdote of Kamehameha I, by J. I. Dowsett, 1879, p. 29.
 Reminiscences of Theatricals in Honolulu, by H. L. Sheldon, 1881, p. 34.
 Idolatrous Customs and Kapus of the Hawaiian People, from address of John II, 1890, p. 59.
 Hawaiian Maritime History, by T. G. T., 1890, p. 66; 1891, p. 125.
 Restoration Day, a Recollection, by Gorham D. Gilman, 1893, p. 70.
 Eminent Hawaiian Women Who were Early Converts, by M. A. Chamberlain, 1893, p. 81.
 Old-Time Coasting Service, by Gorham D. Gilman, 1894, p. 85.
 Kaluahinenui's Heroic Deed, by T. G. T., 1895, p. 60.
 Genesis and Evolution of Honolulu's Dailies, by T. G. T., 1897, p. 108.
 Honolulu in 1853, by W. Goodale, with supplement by T. G. T., 1899, p. 80.
 Honolulu in Primitive Days; Selections from an Old Journal, 1901, p. 74.
 Nuuanu Pali in Olden Times, by Prof. Alexander, 1901, p. 87.
 Club Life in Honolulu, by Hon. A. S. Cleghorn, 1902, p. 128.
 More Landmarks Removed, by T. G. T., 1902, p. 143.
 Streets in Honolulu in the Early Forties, by Gorham D. Gilman, 1904, p. 74.
 Honolulu Events of 1842-44 (Journal of a Merchant Official), 1905, p. 80.
 Anecdote of Kamehameha III, by Gorham D. Gilman, 1906, p. 56.
 Extracts from an Ancient Log, of Capt. Alexander Adams., 1906, p. 66.
 Hawaiian National Reminiscences, address by J. M. Kapena, 1906, p. 74.
 The Kamehameha IV—Neilson Tragedy, by G. D. Gilman and T. G. T., 1906, p. 86.
 Reminiscences of the Stage in Honolulu, by John F. Thrum, 1906, p. 93.
 "Bully" Hayes in Hawaii, by Arthur Johnstone, 1907, p. 120.
 Lahaina of Early Days, by Gorham D. Gilman, 1907, p. 168.

FLORA AND FAUNA.

- Decadence of Hawaiian Forests, by F. L. Clark, 1875, p. 19.
 List of Hawaiian Ferns, by Chas. Derby, 1875, p. 16.
 List of Hawaiian Mosses and Hepaticae, by D. D. Baldwin, 1877, p. 40.
 List of Birds of the Hawaiian Islands, by S. B. Dole, 1879, p. 41.

- Algæ of the Hawaiian Islands, by J. E. Chamberlain, 1881, p. 32.
 Indigenous Ornamental Plants, by J. M. Lydgate, 1882, p. 25.
 Hawaiian Entomology, by Rev. T. Blackburn, 1882, p. 58.
 Hawaiian Woods and Forest Trees, by J. M. Lydgate, 1883, p. 33; 1884, p. 30.
 The Peelua, or Army Worm of the Hawaiian Islands, by J. E. Chamberlain, 1883, p. 44.
 Land Shells of the Hawaiian Islands, by D. D. Baldwin, 1887, p. 55.
 Flora and Fauna of the Hawaiian Islands, by Edward Bailey, 1888, p. 49.
 Concerning Hawaiian Fishes, classified list, by Dr. Chas. H. Wetmore, 1890, p. 90.
 Key of Genera and Species of Hawn. Ferns, by Dr. A. B. Lyons, 1891, p. 76.
 Fruits, Indigenous and Introduced, of Hawaiian Islands, by T. G. T., 1892, p. 75.
 Hawaiian Indigenous Woods, by T. G. T., 1891, p. 87; 1892, p. 88.
 A Few Hawaiian Land Shells, by Dr. A. B. Lyons, 1892, p. 103.
 Native Plants of the Hawaiian Islands, by Dr. A. B. Lyons, 1897, p. 55.
 What a Botanist May See in Honolulu, by Dr. A. B. Lyons, 1900, p. 93.
 Introduction of Foreign Birds into Hawaiian Islands, by Prof. H. W. Henshaw, 1901, p. 132.
 Complete List of Birds of the Hawaiian Possessions, with Notes on Their Habits, by Prof. H. W. Henshaw, 1902, p. 54; 1903, p. 73; 1904, p. 113.
 Collection of Algæ from the Hawaiian Islands, by Josephine E. Tilden, 1902, p. 106.
 A Historic Tortoise or Land Turtle, by T. G. T., 1904, p. 72.
 A Sea-Serpent in Hawaii, by Prof. H. W. Henshaw, 1904, p. 67.
 Algæ Collecting in the Hawaiian Islands, by Josephine E. Tilden, 1905, p. 131.

FOLK LORE.

- Hawaiian Tradition of the Origin of Fire, by Rev. A. O. Forbes, 1880, p. 59.
 Hawaiian Tradition of Pele and the Deluge, by Rev. A. O. Forbes, 1880, p. 61.
 Legend of Maui Snaring the Sun, by Rev. A. O. Forbes, 1881, p. 59.
 Legend of Kepeepeekauila, by Rev. A. O. Forbes, 1882, p. 36.
 Myth of Hiku and Kawelu, by J. S. Emerson, 1883, p. 26.
 The Story of Kalelealuaka, by Dr. N. B. Emerson, 1885, p. 30.
 A Visit to the Spirit Land, by Mrs. C. E. Haley, 1892, p. 83.
 Battle of the Owls, by Jos. M. Poepoe, 1892, p. 86.
 The Punahou Spring, by Mrs. E. M. Nakuina, 1893, p. 101.
 Stories of the Menehunes, by T. G. T., 1895, p. 112.
 Legend of Oahunui, by Mrs. E. M. Nakuina, 1897, p. 90.
 Hawaiian Fish Stories and Superstitions, Trans. from L. D. Keliipio, 1901, p. 110.
 Ku-ula the Fish God of Hawaii, Trans. from Moke Manu, 1901, p. 114.
 Ai'ai, Son of Ku-ula, being Part II, Trans. Completed by S. N. Emerson, 1902, p. 114.
 Ancient Hawaiian Prophecy, "The Land is given to the Sea," Trans. by T. G. T., 1904, p. 105.
 Legend of Kaneaukai, by T. G. T., 1905, p. 146.
 Kaala and Kaialii, a Legend of Lanai, by W. M. Gibson, 1906, p. 112.
 Comparative Mythology of the Pacific, by Rev. W. D. Westervelt, 1907, p. 78.

- Kaililaoukekoa, Legend of, Trans. by T. G. T., 1907, p. 83.
 Wizard Stones of Ka-pae-mahu, Traditions of, by Jas. H. Boyd, 1907,
 p. 139.

REFERENCE.

- Chronological Table of Important Hawaiian Events, by T. G. T., 1876,
 p. 12; 1888, p. 59; 1899, p. 55.
 Hawaiian Customs Tariff, by J. A. Hassinger, 1880, p. 41; revised by J.
 A. H. and T. G. T., 1895, p. 118.
 List of All Cabinet Ministers of Hawaiian Government, by Prof. Alex-
 ander, 1891, p. 92; continued by T. G. T., 1899, p. 69.
 Chronological Table of Noted Voyages, etc., in Pacific Ocean, by Rev. C.
 M. Hyde, 1884, p. 53.
 The Chinese Question in Hawaii; a Cabinet Reply, 1890, p. 88.
 List of Indigenous Hawaiian Woods, Trees and Large Shrubs, by T. G.
 T., 1891, p. 87.
 Supreme Bench of the Hawaiian Islands, by T. G. T., 1891, p. 96.
 Descriptive Catalogue of Postage Stamps of Hawaii, by W. M. Giffard,
 1894, p. 99.
 Islands Comprising the Hawaiian Republic, by T. G. T., 1898, p. 165.
 The Days We Celebrate; Holidays and Their Observance, by T. G. T.,
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 Names of Fish Known to the Honolulu Market, by L. D. Keliipio, 1900,
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 Table Showing Water Developed and Expenditure for Same, Territory of
 Hawaii, by T. G. T., 1905, p. 164.
 Jubilee Number of the Advertiser, by T. G. T., 1907, p. 165.

LABOR AND IMMIGRATION.

- Portuguese Immigration to Hawaiian Islands, by A. Marques, 1887, p. 74.
 Chinese Immigration to the Hawaiian Islands, by W. H. Wright, 1894,
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 Hawaii's Labor Commission, by T. G. T., 1895, p. 73.
 History of Immigration to Hawaii, by Prof. Alexander, 1896, p. 114.
 The Labor Outlook, by Jas. B. Castle, 1898, p. 88.
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 Irrigation in Hawaii, by M. M. O'Shaughnessy, 1905, p. 155.
 Beautifying Honolulu, from report of Chas. M. Robinson, 1907, p. 97.
 More Water Development, Kohala Ditch, by T. G. T., 1907, p. 115.
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VOLCANO.

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 Eruptions of Hawaiian Volcanoes, by G. W. Stewart, 1883, p. 50.
 Suspended and Renewed Activity of Kilauea, by T. G. T., 1887, p. 67.
 Kilauea in 1889 and in 1892, by Dr. A. B. Lyons, 1893, p. 94.
 Erratic Kilauea, by T. G. T., 1895, p. 78.
 Mokuaweoweo in Activity, by Dr. B. Friedlander 1897, p. 71.
 Mauna Loa's Eruption of 1899, by Prof. A. B. Ingalls, 1900, p. 51.
 Kilauea Resumes Volcanic Activity, by T. G. T., 1903, p. 68.
 Activity of Mauna Loa's Summit Crater, by T. G. T., 1904, p. 163.

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 Musical Status of Hawaii, by Wray Taylor, 1899, p. 164.
 Hawaiian Mele from Musical Standpoint, by B. L. Marx, 1904, p. 154.
 Honolulu Symphony Society, by B. L. Marx, 1906, p. 160.

HAWAII-NEI.

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 Hawaii as a Mission Center, by Rev. E. G. Beckwith, 1895, p. 85.
 Hawaii's Oldest Resident, by A. T. Atkinson, 1897, p. 118.
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 The Judiciary of Hawaii, by A. F. Judd, 1898, p. 95.
 Aloha, an Hawaiian Salutation, by T. G. T., 1899, p. 132.

- Honolulu Street Characters, by T. G. T., 1900, p. 119.
 The Meaning of Some Place Names, by C. J. Lyons, 1901, p. 181.
 Hawaiian Calabashes, by T. G. T., 1902, p. 149.
 On Hawaiian Duplicated Place Names, by T. G. T., 1905, p. 150.
 Mamalahoa, an Ancient Hawaiian Law, by C. L. Hopkins, 1906, p. 81.
 Burial Caves of Hawaii, by S. Andwich, 1906, p. 109.
 Hawaiian Pa-u Riders, by T. G. T., 1907, p. 106.

CLIMATE.

- Causes of Peculiarity of Hawaiian Climate, by Rev. S. E. Bishop, 1881,
 p. 44.
 Features of Hawaiian Climate, by C. J. Lyons, 1894, p. 63.
 Climate of the Hawaiian Islands, by Dr. G. P. Andrews, 1898, p. 103.
 The Cold Current System of the Pacific, by Rev. S. E. Bishop, 1905,
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DESCRIPTIVE.

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 One Day at Molokai, by E. Hoppin, 1892, p. 100.
 Manoa Valley; Descriptive and Legendary, by T. G. T., 1892, p. 110.
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 A Visit to Waimea, Oahu, by T. G. T., 1906, p. 113.
 The Heiau of Kupopolo, by T. G. T., 1906, p. 117.

MISCELLANEOUS.

- The Tides, by C. J. Lyons, 1875, p. 31.
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 p. 39.
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 Fossils of Hawaii, by Dr. A. B. Lyons, 1891, p. 100.
 The Hawaiian Historical Society, by Rev. R. R. Hoes, 1893, p. 110.
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 Kilohana Art League, by Dr. C. T. Rogers, 1896, p. 136.
 Mark Twain's Dream, from Volcano Hotel Register, 1897, p. 79.
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 Honolulu's Developing Dramatic and Musical Talent, by Allan Dunn, 1905,
 p. 124.
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 Goats in Hawaii, by Dr. A. Marques, 1906, p. 48.
 No Snakes in Hawaii, by T. G. T., 1906, p. 91.
 The Public Archives Commission, by T. G. T., 1906, p. 141.
 Local Office U. S. Weather Bureau, by Alex. McC. Ashley, 1906, p. 157.
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 muller, A. E. Jordan, W. E. Burke.
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Organized 1905.

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 Secretary and Treasurer.....J. Kotinsky
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Organized March 17, 1902.

President.....A. F. Judd
 Vice-President.....A. W. Carter
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THE FARMERS' INSTITUTE.

Organized Jan. 23, 1902.

President.....Jared G. Smith
 Secretary.....F. G. Krauss
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HOOUULU LAHUI SOCIETY.

Organized, 1878.

President Princess Kalanianaʻole
 Vice-President J. K. Kalanianaʻole
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PORTUGUESE CHARITABLE SOCIETY.

Organized Sept. 1, 1902.

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Organized March. Incorporated June 24, 1879.

President C. H. Atherton
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HAWAIIAN HISTORICAL SOCIETY.

Organized Jan. 11 1892. Annual Meeting November.

President Dr. W. D. Alexander
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Organized May 5, 1894.

President D. Howard Hitchcock
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HAWAIIAN MEDICAL ASSOCIATION.

Organized May 24, 1895. Annual Meeting in May.

President Dr. A. N. Sinclair
 Vice-President Dr. F. H. Humphries
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 Drs. C. B. Cooper, W. L. Moore, with the
 above officers, constitute the Executive
 Committee.

DENTAL SOCIETY OF HAWAII.

Organized May, 1903.

President Dr. C. B. High
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 Secretary Dr. F. E. Clark
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HAWAIIAN SOCIETY SONS OF THE AMERICAN REVOLUTION.

Organized June 17, 1895.

President John Effinger
 Vice-President L. A. Thurston
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Organized

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BAR ASSOCIATION OF HAWAII.

Organized June 28, 1899.

President W. A. Kinney
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 Treasurer W. L. Whitney
 Auditor W. C. Parke

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Erected in 1860.

President The Governor
 Vice-President E. F. Bishop
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 Resident Physician Dr. Wm. Osmers
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Organized March 18, 1901.

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 Secretary E. H. Paris
 Treasurer W. W. Harris
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HAWAII PROMOTION COMMITTEE.

Representing the
 Territory of Hawaii, Chamber of Commerce
 and Merchants' Association.

Organized 1903.

F. L. Waldron, Chairman; W. E. Brown, Wm. T. Lucas, J. A. McCandless, Jas. L. McLean,
 H. P. Wood.....Secretary

CIVIC FEDERATION.

Organized Jan. 26, 1905.

President A. F. Griffiths
 1st Vice-President F. B. McStocker
 2nd Vice-President Dr. D. Scudder
 Secretary Ed. Towse
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 Executive Com.—W. A. Bryan, R. S. Hosmer,

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Organized 1902.

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 Maui, Wm. Searby.
 Hawaii, D. E. Metzger.
 Kauai, Norman Greig.

HONOLULU STOCK AND BOND EXCHANGE.

Organized August 8, 1898.

President W. E. Brown
 Vice-President R. W. Shingle
 Secretary Geo. P. Cooke
 Treasurer Bishop & Co.

HAWAIIAN SUGAR PLANTERS' ASSOCIATION.

Re-organized Nov. 18, 1895.

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 H. F. Wichman.

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Organized April 4, 1900.

President Alex. Young
 Vice-Presidents—W. O. Smith, C. H. Atherton.
 Secretary T. Clive Davies
 Treasurer A. W. T. Bottomley
 Auditor J. P. Cooke
 Medical Supt. A. N. Sinclair, M. B. C. M.
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SAILORS' HOME SOCIETY.

Organized 1853. Meets annually in December.

President F. A. Schaefer
 Vice-President T. Clive Davies
 Secretary C. H. Atherton
 Treasurer W. W. Hall
 Executive Committee—A. Fuller, W. W. Hall, J. A. Kennedy.

HAWAIIAN EVANGELICAL ASSOCIATION.

Originally Organized 1823.

Constitution revised 1863. Annual Meeting June.

President	P. C. Jones
Vice-President	W. W. Hall
Cor. Secretary	
Rec. Secretary	Rev. W. D. Westervelt
Treasurer	Theo. Richards
Auditor	F. C. Atherton

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Organized 1871.

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Organized 1851. Annual Meeting in June.	
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Secretary	Mrs. R. W. Andrews
Recorder	R. W. Andrews
Treasurer	L. A. Dickey

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Organized 1869. Annual Meeting in April

President	T. Clive Davies
Vice-President	Edgar Wood
Rec. Secretary	M. G. Johnson
Treasurer	C. H. Atherton
General Secretary	Paul Super
Physical Instructor	Dr. E. H. Hand

YOUNG WOMEN'S CHRISTIAN ASSOCIATION.

Organized 1900.

President	Mrs. E. W. Jordan
Vice-President	Mrs. B. F. Dillingham
Secretary (Acting)	Mrs. C. Montague Cooke
Treasurer	Mrs. B. L. Marx
General Secretary	Miss C. O. Moyer

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Organized December, 1884.

President	Mrs. J. M. Whitney
Vice-Presidents—	Mrs. D. Scudder, Mrs. P. C. Jones.

Recording Secretary	Miss Florence Yarrow
Cor. Secretary	Mrs. E. W. Jordan
Treasurer	Mrs. Lydia Coan
Auditor	W. W. Hall

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Organized 1895.

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Recording Secretary	
Treasurer	Mrs. F. M. Swanzy
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Organized June 7, 1899.

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2nd Vice-President	Mrs. C. du Roi
Secretary	Mrs. J. M. Whitney
Treasurer	Geo. P. Cooke
Manager	Mrs. E. W. Jordan

AMERICAN RELIEF FUND.

Organized 1864. Meets annually Feb. 22.

President	Robt. Lewers
Vice-President	W. W. Hall
Secretary and Treasurer	W. O. Atwater

STRANGERS' FRIEND SOCIETY.

Organized 1852. Annual Meeting in June.

President	Mrs. A. Fuller
Vice-Presidents—	Mrs. S. B. Dole, Mrs. E. F. Bishop.
Secretary	Mrs. S. M. Damon
Treasurer	Mrs. F. W. Jordan
Auditor	E. W. Jordan

BRITISH BENEVOLENT SOCIETY.

Organized 1869. Meets Annually.

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Vice-President	Rev. A. Mackintosh
Secretary	R. Catton
Treasurer	George Davies
Relief Committee—	G. R. Ewart, J. C. Cook, W. H. Baird, F. Harrison, R. Anderson and H. E. McIntyre, with the above officers, comprise the committee.

GERMAN BENEVOLENT SOCIETY.

Organized August 22, 1856.

President	F. A. Schaefer
Vice-President	W. Pfotenhauer

Secretary John F. Eckart
 Treasurer B. von Damm
 Auditor

HAWAIIAN RELIEF SOCIETY.

Organized 1895.

President Mrs. C. S. Holloway
 Secretary Mrs. E. S. Cunha
 Treasurer Mrs. F. W. Macfarlane

RED CROSS SOCIETY.

Organized Sept. 2, 1907.

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 1st Vice-President Mrs. B. F. Dillingham
 2nd Vice-President J. R. Galt
 Secretary Mrs. W. W. Hall
 Treasurer C. H. Cooke

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President A. S. Cleghorn
 Vice-President F. J. Lowrey
 Secretary D. Dayton
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ANTI-SALOON LEAGUE OF HONOLULU, T. H.

Organized March 4, 1901.

President Rev. J. W. Wadman
 Vice-President Rev. W. D. Westervelt
 Vice-Pres. Honorary Mrs. J. M. Whitney
 Secretary L. A. Dickey
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Organized 1852. Premises on Alakea Street,
 two doors below Beretania.

President A. S. Cleghorn
 Vice-President F. M. Swanzy
 Secretary James G. Spencer
 Treasurer J. M. Dowsett
 Governors—F. Klamp, A. A. Wilder, L. E.
 Pinkham, A. L. C. Atkinson and R. Ivers,
 with the above officers, comprise the
 Board.

UNIVERSITY CLUB.

Organized 1905.

President Hon. A. S. Hartwell
 Vice-President A. Gartley
 Secretary S. M. Ballou
 Treasurer J. R. Galt

COMMERCIAL CLUB OF HONOLULU.

Organized Aug. 30, 1906.

President Geo. W. Smith
 Secretary E. H. Paris
 Treasurer R. H. Trent

SCOTTISH THISTLE CLUB.

Organized April 27, 1891.

Chief J. C. McGill
 Chieftain J. M. Mackinnon
 Secretary John Macauley
 Treasurer J. M. Macconel
 Master-at-Arms J. H. Catton
 Club Room, Oregon Building, Union Street.
 Meeting on Friday, 7:30 p. m.

BUCKEYE CLUB.

Organized 1904.

President C. H. Dickey
 Vice-President F. W. Francis
 Sec. and Treas. Mrs. F. Sackwitz

HONOLULU SYMPHONY SOCIETY.

President Ernest Kopke
 Vice-President H. F. Wichman
 Secretary G. J. Boisse
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Organized

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Organized

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 Secretary and Treasurer A. A. Hobson
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Organized Dec., 1885; revived 1905. (Affiliated with National Rifle Ass'n.)

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Organized 1906.

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Organized Oct., 1901.

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 Captain A. Jaeger
 Regatta Com.—W. H. McInerny, C. T. Wilder,
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 Directors—C. W. Macfarlane, Geo. Crozier, W.
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Organized Feb. 5, 1883.

President W. W. Harris
 Vice-President T. V. King
 Secretary J. F. Soper
 Treasurer I. Spalding
 Captain F. Bechert
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Incorporated Dec., 1894.

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 Anna F. Johnson, Isabel Gregg—Fifth Grade.
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 Grade.
 Claire H. Uecke—Kindergarten Director.
 M. B. Stephen, Clara F. Hemenway—Assist-
 ants.

KAWAIAHAO GIRLS' SEMINARY.

Miss Kathervn C. McLeod—Principal.
 Assistants—Misses Colwell, Edna Skinner,
 Nellie Waddington, Grace Howell.
 Teacher of Music—Mrs. Revenburg.
 Teacher of Piano—Mrs. W. J. Forbes.

Matron—Mrs. Reeves.
General Assistant—Miss Esther Kalino.

THE KAMEHAMEHA SCHOOLS.

Officers of Administration.

Perley L. Horne—President.
Uldrick Thompson—Vice-Principal.
John Lloyd Hopwood—Chaplain.
Clifford B. Livingston—Registrar and Business Agent.
John C. Anderson—Assistant Registrar and Business Agent.
E. C. Waterhouse, M. D.—Physician.
Ida M. Pope—Principal Girls' School.
Alice E. Knapp—Preparatory Department School for Boys.

FACULTIES.

School for Boys' Manual Department.

Perley L. Horne—President.
Uldrick Thompson—Vice-Prin. and Science.
David Kanuha—Tailoring.
Ira Eskew—Carpentry.
Albert Parsons—Agriculture.
C. G. Livingston—Mathematics, Music.
Jno. Lloyd Hopwood—History, Civics, Economics.
Ross C. Ingram—Forging, Engineering.
Minnie Reed—Geography, Reading.
Clifford B. Thompson—Asst. in Agriculture.
Mrs. Alice M. Bradstreet—Matron.
Mary G. Kimble—English.
Wm. S. Cookson—Machine Shop and Mechanical Drawing.
Geo. Hitchings—Carpentry.
Paul Kuesthardt—Printing.
R. N. Oliver—Military Instructor.
Ida M. Hicks—Supt. of Hospital.

Preparatory Department.

Alice E. Knapp.
Eugenia Thomas—Fifth and Sixth Grades.
Sarah A. Smith—First and Second Grades.
Maude Post—Third and Fourth Grades.
Helen Lisle, Nevada Moore—Class Teachers.
A. F. Perrott—Matron.
Assistants—Dora Todd, Margaret Anahu, Eliza Kahale. Capt. Nahora Hipa, Military Instructor.

School for Girls.

Ida M. Pope.
Francis Levier—English.
Frances A. Lemmon—Geography, Arithmetic.
S. Lillian Byington—Music.
Minnie Gallagher—Music.
Margaret E. Clarke—Organ.
Jennie Anderson—Nurse.
Catherine Bergner—Matron.
H. S. Carpenter—Drawing, Manual Training.
Mary L. Lawrence—Literature, History.
Carrie Church—Domestic Art.
Assistants—Helen K. Keoiki, Henrietta Scholtz, Margaret Williams, Irene Silva, Kaipo Senna.

HONOLULU (STEAM) FIRE DEPARTMENT.

Originally organized 1851, and conducted as volunteers till March 1, 1893, when it was changed to a paid department.

Chief Engineer—Chas. Thurston.
Asst. Engineer—Augustus Deering.
Honolulu Engine No. 1—Location, Central Station, cor. Fort and Beretania streets.
Mechanic Engine No. 2—Location, Central Station, cor. Fort and Beretania streets.
Chemical Apparatus No. 3—Location, Central Station, cor. Fort and Beretania streets.
Protection Hook and Ladder Co. No. 1—Location, Central Station, cor. Fort and Beretania streets.
Engine Co. No. 4—Location, cor. Wilder avenue and Piikoi street.
Engine Co. No. 5—Location, King street, near Reform School.

FIRE ALARM SIGNALS.

12. Cor. King and Fort.
13. Alakea and Beretania.
14. Bethel and Merchant.
15. Nuuanu and Queen.
16. Nuuanu and King.
17. Nuuanu and Hotel.
18. Nuuanu and Beretania.
21. Fort and Hotel.
23. Alakea and Hotel.
24. Alakea and Merchant.
25. Punchbowl and King.
26. Punchbowl and Queen.
27. South and Queen.
31. Fort and Queen.
32. Fort and Allen.
34. Allen and Kilauea.
35. Alakea-Halekauwila.
36. Richards and Queen.
37. Punchbowl and Allen.
41. King and River.
42. Kekaulike and Hotel.
43. Smith and Pauahi.
45. Beretania and River.
46. Maunakea and King.
47. Railroad Wharf.
48. Iwilei Road, opp. Fertilizer Works.
49. Cannery, opp. Iwilei Road.
51. Iwilei Road, opp. Oahu Jail.
52. Beretania and King.
53. Liliha and King.
54. King and Dowsett Lane.
56. Insane Asylum Road and School St.
57. King Street, 200 feet Ewa of Pumping Station.
58. King and Kalihi Road.
59. Middle and Rose.
61. Vineyard and River.
62. Vineyard St. and Nuuanu Ave.
63. Vineyard and Fort.
64. Vineyard and Punchbowl.
65. Beretania and Punchbowl.
67. Alapai and Beretania.
71. Liliha and School.
72. Liliha and Judd.
73. Pauoa and Nuuanu Avenue.
74. Nuuanu and School.
75. Fort and School.
76. Emma and School.
78. Pauoa Road near Bridge.
81. Alapai and King.

82. Victoria and King.
83. Kapiolani and Beretania.
84. Kapiolani and Green.
85. Pensacola and Lunalilo.
86. Pensacola and Beretania.
87. Piikoi and King.
91. Thurston Ave. opp. Magazine.
92. Pensacola and Wilder Ave.
93. Lunalilo, opp. Kewalo.
94. Keeaumoku St. and Wilder Ave.
95. Kewalo and Heulu.
96. Makiki and Dominis.
97. College and Dominis.
123. Makiki and Lunalilo.
124. Keeaumoku and Kinau.
125. Keeaumoku and King.
126. Punahou, opp. Bingham.
127. Alexander and Beretania.
128. King and McCully.
129. King and Punahou.
132. Waikiki Road, opp. Sunny South.
134. Waikiki Road and Kalia Road.
135. Kalia Road opp. W. R. Castle Place.
136. Waikiki Road opp. Moana Hotel.
137. Waikiki Road opp. Race Track.

PRINCIPAL PUBLICATIONS.

- The Hawaiian Gazette, issued semi-weekly by the Hawaiian Gazette Co., Ltd., on Tuesdays and Fridays. Walter G. Smith, Editor.
- Sunday Advertiser, issued every Sunday morning by the Hawaiian Gazette Co., Ltd. Walter G. Smith, Editor.
- The Daily Pacific Commercial Advertiser, issued by the Hawaiian Gazette Co. every morning (except Sunday). Walter G. Smith, Editor.
- The Daily Bulletin, issued every evening (except Sundays), by the Bulletin Pub. Co. W. R. Farrington, Editor. Weekly editions issued on Tuesdays.
- The Hawaiian Star, issued every evening (except Sundays), by the Hawaiian Star Newspaper Association. Frank L. Hoogs, Manager. Semi-Weekly issued on Mondays and Thursdays.
- The Guide, issued every Tuesday and Friday morning by the Guide Pub. Co.
- The Friend, Organ of the Hawaiian Board, issued on the first of each month. Rev. Doremus Scudder, Editor.
- The Angelican Church Chronicle, issued on the first Saturday of every month. Rev. A. Mackintosh, Editor.
- The Paradise of the Pacific, issued monthly. W. M. Langton, Editor and Publisher.
- The Planters' Monthly, issued on the 15th of each month. R. D. Mead, Editor.
- The Hawaiian Forester and Agriculturist, issued monthly under direction of Board of Com. Agr. and Forestry. L. G. Blackman, Editor.
- The Honolulu Times, issued monthly. Anna M. Prescott, Editor and Publisher.
- The Kuokoa (native), weekly, issued every Friday morning by the Hawaiian Gazette Co., Ltd. Solomon Hanohano, Editor.
- Aloha Aina (native) issued every Saturday. Ed. Like, Editor.
- Kuokoa Home Rula (native), issued each Friday. Jos. M. Poepoe, Editor.

- O. Luso (Portuguese), issued weekly on Saturdays. J. S. Ramos, Editor.
- A Liberdade, Portuguese weekly, published on Thursdays. C. Pereira, Editor.
- Sun Chung Kwock Bo, tri-weekly, Chinese.
- The Yamato Shimbun, Japanese daily.
- Hawaii Shinno, issued daily in Japanese.
- Hilo Tribune, issued weekly on Saturdays by the Tribune Pub. Co., Hilo. A. M. Burns, Editor.
- The Hawaii Herald, issued weekly at Hilo on Thursdays by the Herald Pub. Co. C. R. Buckland, Editor.
- The Maui News, issued weekly at Wailuku, Maui. H. M. Coke, Editor.
- The Garden Island, issued weekly at Lihue, Kauai. O. Omsted, Editor.
- THE HAWAIIAN ANNUAL, issued the latter part of December for the following year. Thos. G. Thrum, Editor and Publisher.

HONOLULU LODGES, ETC.

- Oceanic Lodge No. 371, F. & A. M.; meets on the last Monday in each month in Masonic Hall.
- Hawaiian Lodge, No. 21, F. & A. M.; meets in its Hall, Masonic Temple, corner Hotel and Alakea streets, on the first Monday in each month.
- Honolulu Chapter, No. 1, R. A. M.; meets in Masonic Hall on the third Thursday of each month.
- Honolulu Commandery, No. 1, Knights Templar; meets in Masonic Hall on second Thursday of each month.
- Mystic Shrine, Aloha Temple. No stated time of meeting. Meets at Masonic Hall.
- Kamehameha Lodge of Perfection, No. 1, A. & A. S. R.; meets in Masonic Hall on the fourth Thursday of each month.
- Nuanu Chapter of Rose Croix, No. 1, A. & A. S. R.; meets in Masonic Hall on the first Thursday in the month.
- Alexander Liholiho Council, No. 1, of Kadosh; meets on the third Monday of alternate months from February.
- Pacific Lodge, No. 822, A. F. & A. M.; meets at Masonic Hall every second Monday of the month.
- Leahi Chapter, No. 2, Order of the Eastern Star; meets on third Monday of each month in Masonic Hall.
- Lei Aloha Chapter, No. 3, Order of the Eastern Star; meets on second Saturday of each month in Masonic Temple.
- Excelsior Lodge, No. 1, I. O. O. F.; meets at the hall in Odd Fellows' Building, on Fort St., every Tuesday evening.
- Harmony Lodge, No. 2, I. O. O. F.; meets each Monday evening in Odd Fellows' Building, Fort street.
- Pacific Degree Lodge, No. 1, Daughters of Rebekah; meets in Odd Fellows' Building, Fort street, second and fourth Thursdays of each month.
- Olive Branch Rebekah, No. 2, I. O. O. F.; meets first and third Thursdays each month in Odd Fellows' Building.
- Polynesian Encampment, No. 1, I. O. O. F.; meets in Odd Fellows' Building, Fort street, first and third Fridays of each month.

Canton Oahu, No. 1, P. M., I. O. O. F.; meets second Friday each month in Odd Fellows' Hall, Fort St.

Oahu Lodge, No. 1, K. of P.; meets every Thursday evening at Pythian Hall, cor. Beretania and Fort streets.

Mystic Lodge, No. 2, K. of P.; meets every Wednesday evening at Pythian Hall, cor. Beretania and Fort streets.

Section N. 225—Endowment Rank, K. of P.; meets on the second Saturday of January, July and December in Pythian Hall.

Honolulu Temple, No. 1, Rathbone Sisters; meets in Pythian Hall, first and third Monday evenings of each month.

Wm. McKinley Lodge, No. 8, K. of P.; meets every Saturday evening in Pythian Hall.

Hawaiian Council, No. 689, American Legion of Honor; meets on second and fourth Friday evening of each month in Harmony Hall.

Oceanic Council, No. 777, American Legion of Honor, meets on the first and third Tuesdays of each month.

Hawaiian Tribe, No. 1, Improved Order of Red Men; meets on first and third Thursdays of each month at K. of P. Hall.

Court Lunalilo, No. 6600, A. O. of Foresters; meets at San Antonio Hall on first and third Fridays of each month.

Court Cameos No. 8110, A. O. F.; meets second and fourth Tuesday evening of month in San Antonio Hall.

Geo. W. de Long Post, No. 45, G. A. R.; meets the second Tuesday of each month at Odd Fellows' Building, Fort street.

Theo. Roosevelt Camp, No. 1, Dept. of Hawaii U. S. W. V.; second and fourth Saturdays, Waverly Hall, Bethel street.

Geo. C. Wiltse Camp, Sons of Veterans; meets on third Tuesday of each month in San Antonio Hall.

Capt. Cook Lodge, No. 353, Order Sons of St. George; meets at Harmony Hall every Monday evening.

Court Hawaii, No. 3769, Independent Order of Foresters, meets third Monday of each month.

Damien Council, Young Men's Institute; meets second and fourth Wednesdays of each month at San Antonio Hall.

Honolulu Lodge, B. P. O. Elks, 616; meets every Friday evening in the Elks' Building, King street near Fort.

Honolulu Aerie, No. 140, Fraternal Order of Eagles, meets fourth Wednesday each month in Pythian Hall.

American Association of Masters and Pilots of Steam Vessels, Honolulu Harbor, No. 34; meets first and third Sundays of each month at 7 p. m. in Odd Fellows' Hall.

Marine Engineers' Beneficial Association, No. 100; meets every second and fourth Monday nights at K. of P. Hall.

Kamehameha Lodge (native); meets last Thursday of each month in Odd Fellows' Hall.

Kaiukeaouli Lodge, No. 1 (native); meets on first and third Fridays each month in St. Antonio Hall.

PLACES OF WORSHIP.

Central Union Church, Congregational (Independent), corner Beretania and Richards streets; Rev. Doremus Scudder, D. D., pastor. Services every Sunday at 11 a. m. and 7:30 p. m. Sunday school meets one hour before morning service. Prayer meeting Wednesday evenings at 7:30.

Palama Chapel, J. A. Rath, Superintendent. Sunday school at 9:30 a. m. Gospel services at 7:30 p. m.

Methodist Episcopal Church, corner Beretania and Miller streets. Rev. David W. Crane, pastor. Sunday services at 11 a. m. and 7:30 p. m. Sunday school meets at 10 a. m. Prayer meeting Wednesdays at 7:30 p. m.

The Christian Church, A. C. McKeever, pastor. Sunday services at 11 a. m. and 7:30 p. m. at their house of worship, Alakea street, near King. Sunday school meets at 9:45 a. m.

Salvation Army, services held nightly at hall cor. Nuuanu and King streets, with Sunday services at the usual hour.

Roman Catholic Church, Fort street, near Beretania; Rt. Rev. Libert Boeynaems, Bishop of Zeugma. Services every Sunday at 10 a. m. and 4:30 p. m. Low mass every day at 6 and 7 a. m. High mass Sundays and Saints' days at 10 a. m.

St. Andrew's Cathedral, Protestant Episcopal; entrance from Emma street, near Beretania. Rt. Rev. Henry Bond Restarick, Bishop of the Missionary District of Honolulu; Rev. Canon Alexander Mackintosh, Rev. E. T. Simpson. Holy Communion, 7; Sunday school, 10; morning prayer, litany and sermon, 11; Hawaiian service, 3:30; evening prayer and sermon, 7:30.

Chinese Congregation. Rev. Kong Yim Tet, Curate. Services on Sunday at 11 a. m. and 7:30 p. m. Evening prayer every Wednesday at 7 p. m.

St. Clement's Chapel, Punahou. Services on Sundays. Holy Communion, 7 a. m. Morning prayer, 11 a. m.; evening prayer, 7:30 p. m. Rev. John Osborne, rector.

Christian Chinese Church, Fort street; Rev. E. W. Thwing, acting pastor. Services every Sunday at 10:30 a. m. and 7:30 p. m. Prayer meeting Wednesdays at 7:30 p. m.

German Lutheran Church, Beretania St.; Rev. W. Felmy, pastor. Services on Sunday at 11 a. m.; Sunday school at 10 a. m.

Portuguese (Protestant) Mission; Rev. A. V. Soares, pastor. Services every Sabbath at the usual hour. Sunday school at 3 p. m. Chapel situated corner of Punch-bowl and Miller streets.

Reorganized Church of Jesus Christ, G. J. Waller, pastor. Services in new chapel on King street near Thomas Square; Sunday school at 10 a. m.; preaching in Hawaiian at 11 a. m.; in English at 7:30 p. m.

Seventh Day Adventists. S. D. M. Williams, pastor. Chapel in Printers' Lane. Sabbath school Saturdays at 10 a. m.; preaching at 11. Wednesday prayer and missionary meeting at 7:30 p. m.

Japanese Union Church (connected with Hawaiian Board Missions); Rev. T. Miyamori, pastor. Hold services at the Lyceum at 10 a. m. Preaching at 11 a. m. and 7:30 p. m. Sunday services. Prayer and praise meeting Wednesdays at 7 p. m.

Japanese Church, Rev. G. Motokawa, pastor; hold services in chapel on River street, near St. Louis College.

Japanese Church, cor. Kinau and Pensacola Sts., Rev. T. Okumura, pastor; hold regular services at the usual hours.

Bishop Memorial Chapel, Kamehameha Schools, Rev. J. L. Hopwood, Chaplain. Morning services at 11.

COUNTY OFFICIALS.

COUNTY OF OAHU.

Sheriff Curtis P. Iaukea
Clerk D. Kalauokalani, Jr.
Auditor Jas. Bicknell
Treasurer R. H. Trent
Supervisors—Frank R. Harvey (At-Large), Chas. Hustace, Jr., Jos. J. Fern, Saml. C. Dwight (Honolulu), F. K. Archer, (Ewa), A. E. Cox (Waialua and Waianae), Jos. M. Kealoha (Koolau).

Deputy Sheriffs—Honolulu Wm. P. Jarrett.
Koolauloa, L. K. Naone.
Koolaupoko, Frank Pahia.
Waianae, W. R. Gilliland.
Waialua, Oscar P. Cox.
Ewa, Jno. Fernandez.

Road Supervisor and Supt. Garbage Dept.—Samuel Johnson.

Deputy Road Supervisor—David Crowningberg.

Civil Engineer—G. H. Gear.

Chief Engineer Road Dept.—H. G. Wooten.

Chief Engineer Fire Dept.—Chas. H. Thurston.

Asst. Engineer Fire Dept.—Aug. G. Deering.

Supt. Electric Light Dept. and Police and Fire Alarm System—W. L. Frazee.

Deputy County Attorney—C. H. Olson.

Prosecuting Attorney, Police Court—A. M. Brown.

Bandmaster Hawaiian Band—Capt. Henry Berger.

Supt. Kapiolani Park—Alex. Young.

Road Overseers—Ewa, G. W. Nawaakoa.

Waianae, Fred Meyer.

Waialua, Chas. Kukea.

Koolauloa, Andrew Adams.

Koolaupoko, Solomon Peck.

Waimanalo, Geo. Chalmers.

COUNTY OF MAUI.

Sheriff W. E. Saffrey
Attorney D. H. Case
Auditor Charles Wilcox
Treasurer L. M. Baldwin
Clerk W. F. Kaee
Supervisors—Wailuku, S. E. Kaiue.
Makawao, T. M. Church.
Lahaina, William Henning.
Hana, W. P. Haia.
Molokai, Theo. T. Meyer.

Deputy Sheriffs—Lahaina, C. R. Lindsay.
Wailuku, Chas. Lake.
Makawao, Edgar Morton.
Hana, F. Wittrock.
Molokai, Paia Naki.

COUNTY OF HAWAII.

Sheriff W. M. Keolanui
Auditor C. K. Maguire
Clerk S. K. Pua
Attorney Chas. Williams
Treasurer T. K. Lalakea
Supervisors—Kau, O. T. Shipman.

Kona, Wm. M. Kalaiwaa.

Kohala, Frank Woods.

Hilo, S. K. Keaki, W. A. Todd.

Puna, Gus. D. Supe.

Hamakua, W. N. Purdy.

Deputy Sheriffs—Hilo W. A. Fetter.

North Hilo, James Mattoon.

Hamakua, Wm. J. Rickard.

Puna, S. H. Haaheo.

North Kohala, J. G. Lewis.

Kau, John K. Kekaula.

S. Kohala, W. S. Lindsay.

S. Kona, David K. Baker.

N. Kona, J. N. Koomoa.

COUNTY OF KAUAI.

Sheriff W. H. Rice, Jr.
Auditor Olaf Omstead
Clerk J. M. Kaneakua
Attorney S. K. Kaoo
Treasurer A. H. Rice
Supervisors—Waimea, A. F. Knudsen.

Koloa, W. D. McBryde.

Lihue, H. D. Wishard.

Kawaihau, J. K. Apolo.

Hanalei, Chas. K. Kahee.

Deputy Sheriffs—Lihue, Wm. Ellis.

Waimea, W. O. Crowell.

Koloa, Henry Blake.

Kawaihau, S. W. Meheula.

Hanalei, James K. Lota.

FEDERAL OFFICIALS.

DEPARTMENT OF JUSTICE.

U. S. DISTRICT COURT.

Hon. Sanford B. Dole.....Presiding Judge
 R. W. Breckons.....U. S. Attorney
 W. T. Rawlins.....Asst. U. S. Attorney
 E. R. Hendry.....U. S. Marshal
 F. L. Winter.....
Chief Office Deputy U. S. Marshal
 H. C. Bruns.....Office Deputy U. S. Marshal
 Frank L. Hatch.....Clerk
 A. E. Murphy.....Deputy Clerk
 F. L. Hatch, Geo. A. Davis.....
U. S. Commissioners
 A. T. Brock.....Referee in Bankruptcy
 Chas. Furieux.....U. S. Commissioner, Hilo
 Regular Terms:—At Honolulu on the second
 Monday in April and October, and at
 Hilo on the last Wednesday in January
 of each year.
 Special Terms:—May be held at such times
 and places in the district as the Judge
 may deem expedient.

Miss C. F. Sackett.....Clerk, U. S. Atty
 A. A. Deas.....U. S. Court Stenographer
 Miss M. L. Coleman.....
Stenographer, Clerk's Office
 Miss Goldie Gurney—Stenographer to Hon.
 S. B. Dole, U. S. Dist. Judge.

DEPARTMENT OF COMMERCE AND LABOR.

CUSTOMS DIVISION.

E. R. Stackable.....Collector
 R. C. Stackable.....Special Deputy Collector
 Raymer Sharp.....Chief Examiner
 A. B. Ingalls.....Examiner and Gauger
 John W. Short.....Clerk
 M. H. Drummond.....Deputy Coll'r and Cashier
 F. L. Beringer, R. H. Bemrose, A. W.
 Adams.....Examiners
 C. H. Raven.....Deputy Collector
 J. B. Gibson, J. K. Brown, H. M. Tuck-
 er, M. J. Scanlon.....
Deputy Collectors and Clerks
 E. E. Miller.....Clerk
 E. H. Boyen.....Examiner
 J. J. Kelly, Mark Weil, M. G. Johnson,
 P. M. Naluai, E. S. McGrew.....Clerks
 Emma J. Baker.....Stenographer and Typewriter
 Chas. F. Murray.....Weigher
 E. A. Jacobson.....Dep. Coll'r and Inspector
 G. W. Lucas.....Sampler and Verifier
 W. D. Wilder.....Asst. Gauger
 A. P. Watson.....Clerk
 Margaret K. Timmons.....Inspectress
 C. Kanuha.....Foreman
 E. A. K. Williams.....Messenger

L. N. Gay, C. M. Neal, C. J. Cooper, M.
 W. Tschudi, H. Dinklage, L. R. Ma-
 deiros, J. T. Wirud, G. A. Bower,
 F. M. McGrew, R. J. Taylor...Inspectors
 C. E. Carter, W. H. D. King, R. S.
 Young, J. Hodson, W. H. Straub,
 C. F. G. Rowold, W. J. Gallagher, A.
 E. Mitchell, J. I. Areia, F. G. Noyes,
 T. P. Harris, J. K. Bunker.....
Night Inspectors
 W. O. Aiken.....Deputy Collector, Kahului
 B. K. Baird.....Deputy Collector, Hilo
 R. R. Elgin.....Deputy Collector, Mahukona
 W. D. McBryde.....
Deputy Collector and Inspector, Koloa

IMMIGRATION SERVICE.

Raymond C. Brown.....Inspector in Charge
 R. L. Halsey and H. B. Brown...Inspectors
 George S. Curry.....Chinese Interpreter
 Tomizo Katsunuma.....Japanese Interpreter
 Tong Kau.....Chinese Interpreter
 W. K. Luther, Moses Kauwe, Louis
 Caesar, E. L. Schwarzberg, S. Lukua,
 Manl. Spencer, Robt. Plunkett.....
Watchmen

INTERNAL REVENUE OFFICE.

W. F. Drake.....Collector Internal Revenue
 Ralph S. Johnstone.....Chief Deputy Collector
 O. A. Berndt.....Division Deputy
Deputy and Gauger
 Lee Sing.....Stamp Deputy and Cashier
 Jutaro Fujikawa.....Messenger

LIGHTHOUSE ESTABLISHMENT.

Capt. C. W. Otwell, Corps of Engineers, U. S.
 Army, Engineer 12th Light House Sub-
 District, including Hawaiian, Samoan,
 Midway and Guam Islands.
 S. A. Anthony.....Chief Clerk
 Harold Lord, F. H. Kales, A. Richley...
Superintendents
 Edna Perkins.....Stenographer
 J. J. Crockett.....Receiver Materials
 Frank Palmer.....Storekeeper

POSTOFFICE DEPARTMENT.

Frank J. Hare.....Inspector in Charge
 Geo. W. Carr.....
Asst. Supt. Railway Mail Service
 Jos. G. Pratt.....Postmaster
 Jno. T. Stavton.....Asst. Postmaster
 Wm. McCoy.....Chief Registry Clerk
 F. E. Colby.....Chief Money Order Clerk
 W. C. Kenake.....Chief Mailing Clerk
 F. T. Sullivan.....Supt. of Delivery

NAVY DEPARTMENT.

U. S. Naval Station, Hawaii.

Rear Admiral Samuel W. Very, U. S. N.
Commandant.
Lieutenant-Commander James F. Carter, U.
S. N.
Passed Assistant Surgeon Charles G. Smith,
U. S. N.
Assistant Paymaster B. Hayes Brooks, U.
S. N.
Pay Clerk Thomas Dunn, U. S. N.

Marine Barracks.

First Lieutenant Wm. G. Fay, U. S. M. C.

WAR DEPARTMENT.

U. S. Army.

Engineer Department.

Capt. C. W. Otwell, Corps of Engineers, U. S.
Army, in charge of improvements of Pearl
Harbor, Honolulu Harbor, and Hilo
Harbor, Hawaii, and fortifications Ha-
waiian Islands.

S. F. Burbank.....Assistant Engineer
S. A. Anthony.....Chief Clerk
P. F. Joyce, H. S. Johnson.....Junior Engineers
M. H. Webb.....Overseer
Frank Cox.....Receiver Materials

Depot Quartermaster, U. S. A., Capt. E. H.
Humphrey.

FORT SHAFTER.

Major S. W. Dunning, 20th U. S. Infantry,
Commanding.
Captain F. V. Krug, 20th U. S. Infantry.
" C. W. Exton, 20th U. S. Infantry.
" R. M. Blanchard, Surgeon.

1st Lieut. A. M. Shipp, 20th U. S. Infantry,
Adjutant.
" J. Randolph, 20th U. S. Infantry.
" J. S. McCleery, 20th U. S. In-
fantry.
" A. M. Pardee, 20th U. S. Infantry.
2nd Lieutenant P. G. Wrightson, 20th U. S.
Infantry, Quartermaster and
Commissary.
Contract Surgeon—F. McCullum.

PUBLIC HEALTH AND MARINE HOSPI-
TAL SERVICE.

L. E. Cofer, P. A. Surgeon U. S. P. H. & M.
H. S., in command.
Carl Ramus, P. A. Surgeon, U. S. P. H. &
M. H. S.
Dunlop Moore, P. A. Surgeon U. S. P. H. &
M. H. S.
Donald H. Currie, P. A. Surgeon, U. S. P. H.
& M. H. S.
A. N. Sinclair, Acting Assistant Surgeon U.
S. M. H. S.
Wm. T. James, Acting Assistant Surgeon U.
S. M. H. S.
J. E. Beck, Pharmacist, U. S. M. H. S.
Jno. G. Grace, Acting Assistant Surgeon U.
S. M. H. S., Hilo, Hawaii.
Jno. Weddick, Acting Assistant Surgeon U.
S. M. H. S., Kahului, Maui.
R. H. Dinegar, Acting Assistant Surgeon U.
S. M. H. S., Kihei, Maui.
H. L. Molony, Acting Assistant Surgeon U.
S. M. H. S., Lahaina, Maui.
A. H. Waterhouse, Acting Assistant Surgeon U.
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B. D. Bond, Acting Assistant Surgeon U. S.
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"From every possible authentic source has been gathered the material for Hawaiian Folk Tales. Missionaries, educated natives and the word-of-mouth tales of those living near natural objects to which legends have attached are all laid under contribution, and the result is a book of the first interest. Photographs of semi-religious scenes * * * assist in making these old fables and fairy stories live again, an appropriate relic of days now departed."—*Literary News*.

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